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FILE COVERS 1907 - 13 Mar 2008 VOL 148 ISS 11

FILE LAST UPDATED: 12 Mar 2008 (20080312/ED)

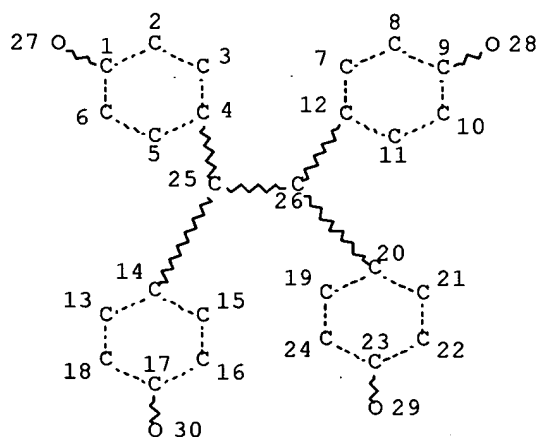
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This file contains CAS Registry Numbers for easy and accurate substance identification.

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L1 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

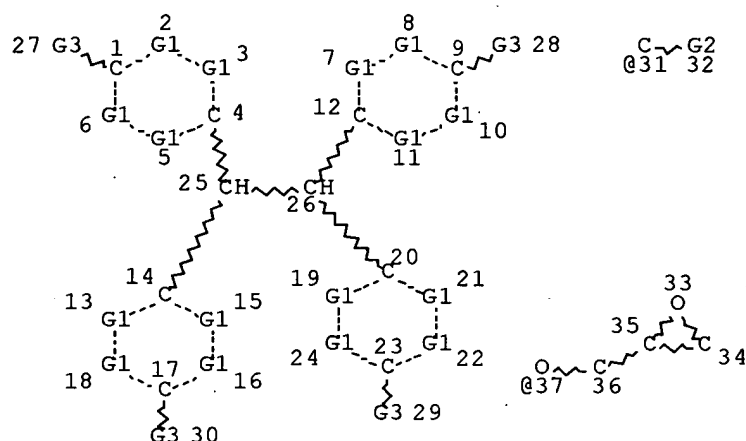
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 30

STEREO ATTRIBUTES: NONE

L3 691 SEA FILE=REGISTRY SSS FUL L1

L6 STR



VAR G1=CH/31

VAR G2=ME/ET/I-PR/N-PR/I-BU/N-BU/T-BU/S-BU/X

VAR G3=OH/37

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 37

STEREO ATTRIBUTES: NONE

L7 SCR 2127

L8 26 SEA FILE=REGISTRY SUB=L3 SSS FUL L6 NOT L7

L9 360 SEA FILE=HCAPLUS ABB=ON PLU=ON L8

L10 809777 SEA FILE=HCAPLUS ABB=ON PLU=ON (RESINS/CV OR RESIN/CV OR RESINIFICATION/CV OR RESINOLS/CV OR GUM/CV OR "GUM RESINS"/CV OR GUMS/CV OR "GUMS (RESINOUS)"/CV OR "NATURAL RESINS"/CV OR "RESINOUS GUMS"/CV) OR RESIN

L12 122999 SEA FILE=HCAPLUS ABB=ON PLU=ON LIGHT-SENSITIVE MATERIALS/CV OR PHOTSENS? OR LIGHT(2A) SENSIT?

L13 98 SEA FILE=HCAPLUS ABB=ON PLU=ON L9(L) L10

L14 13 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND L13

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L14 ANSWER 1 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:461965 HCAPLUS Full-text

DOCUMENT NUMBER: 146:443115

TITLE: Epoxy resins for **photosensitive** resin compositions with good heat, impact, and moisture resistance

INVENTOR(S): Nakanishi, Masataka; Oshimi, Katsuhiko; Tanaka, Ryutaro; Kurihashi, Toru

PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan; Nippon Kayaku Fukuyama

SOURCE: PCT Int. Appl., 31pp.

CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007046262	A1	20070426	WO 2006-JP320184	20061010
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRIORITY APPLN. INFO.: JP 2005-302619 A 20051018

AB Title epoxy resins are obtained by glycidylating  $\geq 1$  phenol compound comprising  $\geq 95\%$  1,1,2,2-tetrakis(hydroxyphenyl)ethane, wherein the epoxy resins have a tetranucleus-form content of 50-90% and an octanucleus-form content of  $\geq 5\%$  by gel permeation measurement and have a total chlorine amount of  $\leq 5,000$  ppm. Thus, 99.5 parts TEP-DF (1,1,2,2-tetrakis(4-hydroxyphenyl)ethane) and 460 parts epichlorohydrin were reacted in methanol in the presence of sodium hydroxide at  $70^\circ$  to give an epoxy resin with epoxy equivalent 169 g/quivalent, tetranucleus-form content 79%, octanucleus-form content 17%, and total chlorine content 3220 ppm, 50 parts of which was mixed with 32 parts a phenol novolak and 0.5 parts triphenylphosphine, and cured at  $120^\circ$  for 2 h,  $140^\circ$  for 2 h, and  $180^\circ$  for 6 h to give a cured product, showing glass transition temperature  $196^\circ$ , moisture absorption 2.0%, and Izod impact strength 13 kJ/m.

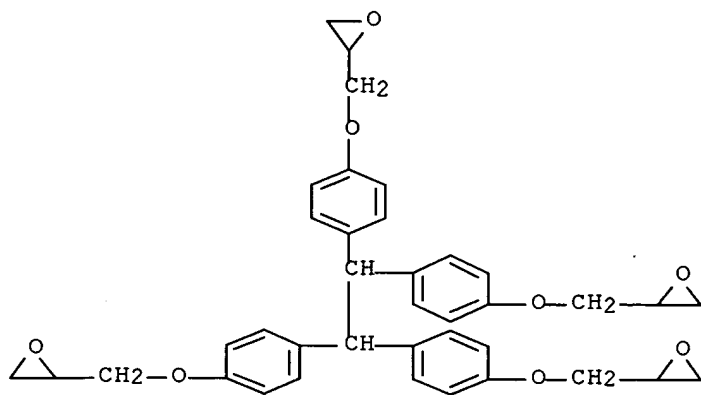
IT 7328-97-4DP, 1,1,2,2-Tetrakis(4-glycidoxyphenyl)ethane, polymers with epoxy compds. and phenolic **resins**

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

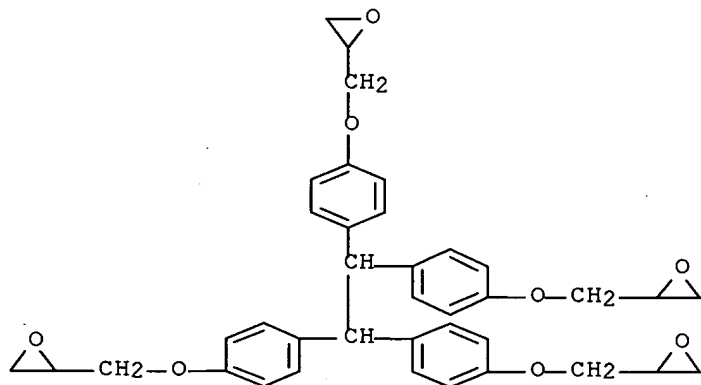
(preparation of epoxy **resins** for **photosensitive resin** compns. with good heat, impact, and moisture resistance)

RN 7328-97-4 HCAPLUS

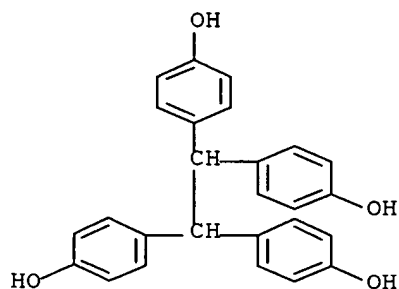
CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis- (CA INDEX NAME)



IT **7328-97-4P**, 1,1,2,2-Tetrakis(4-glycidyloxyphenyl)ethane  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation of epoxy **resins** for **photosensitive**  
**resin** compns. with good heat, impact, and moisture resistance)  
 RN 7328-97-4 HCAPLUS  
 CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-  
 phenyleneoxymethylene)]tetrakis- (CA INDEX NAME)



IT **7727-33-5**, TEP-DF  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of epoxy **resins** for **photosensitive**  
**resin** compns. with good heat, impact, and moisture resistance)  
 RN 7727-33-5 HCAPLUS  
 CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

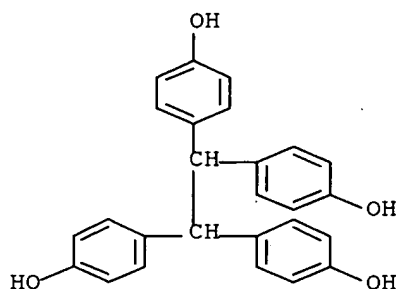
L14 ANSWER 2 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2006:190271 HCAPLUS Full-text  
 DOCUMENT NUMBER: 144:263608  
 TITLE: **Photosensitive** resin composition containing epoxy resin varnish hardening agent  
 INVENTOR(S): Oshimi, Katsuhiko; Akatsuka, Yasumasa; Nakanishi, Masataka; Tanaka, Ryutaro  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006058434	A	20060302	JP 2004-238237	20040818
PRIORITY APPLN. INFO.:			JP 2004-238237	20040818

AB Disclosed is a **photosensitive** resin composition comprising an alkali aqueous solution-soluble resin, a crosslinker, a photopolymn. initiator, and a hardening agent, wherein said hardening agent is an epoxy resin varnish obtained by effecting glycidyl etherification of a condensation product between glyoxal and phenols with epichlorohydrin and then adding an organic solvent.

IT **7727-33-5DP**, TEP-DF, reaction product with epichlorohydrin  
 RL: IMF (Industrial manufacture); NUU (Other use, unclassified); PREP (Preparation); USES (Uses)  
 (**Photosensitive resin** composition containing epoxy resin varnish hardening agent)

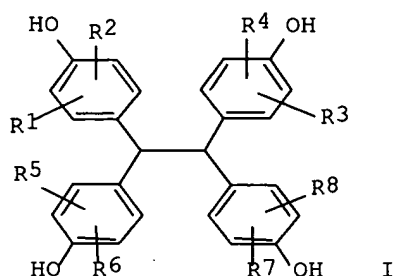
RN 7727-33-5 HCAPLUS  
 CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



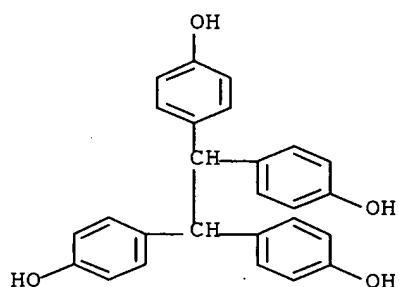
L14 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2005:823931 HCAPLUS Full-text  
 DOCUMENT NUMBER: 143:219462  
 TITLE: **Photosensitive** resin composition and cured product thereof  
 INVENTOR(S): Tanaka, Ryutaro; Nakanishi, Masataka; Akatsuka, Yasumasa; Koyanagi, Hiroo  
 PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan  
 SOURCE: PCT Int. Appl., 39 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005076079	A1	20050818	WO 2005-JP1817	20050208
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1715381	A1	20061025	EP 2005-709869	20050208
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS				
CN 1918514	A	20070221	CN 2005-80004391	20050208
US 2007161100	A1	20070712	US 2006-597799	20060808
PRIORITY APPLN. INFO.:			JP 2004-31953	A 20040209
			WO 2005-JP1817	W 20050208

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- AB Disclosed is a **photosensitive** resin composition with excellent **photosensitivity** whose cured product is excellent in adhesiveness, pencil hardness, solvent resistance, acid resistance, heat resistance, gold plating resistance and the like. Also disclosed is such a cured product. Specifically disclosed is a **photosensitive** resin composition containing a resin (A) soluble in an aqueous alkaline solution, a crosslinking agent (B), a photopolymerization initiator (C) and a curing agent (D), wherein the curing agent (D) is an epoxy compound obtained by glycidylating a compound containing not less than 80% of a tetraphenylethane derivative represented by I (R1-8 independently represent a hydrogen atom, a C1-C4 alkyl group or a halogen atom).
- IT 7727-33-5DP, TEP-DF, reaction product with epichlorohydrin, polymer  
 RL: IMF (Industrial manufacture); NUU (Other use, unclassified); PRP (Properties); PREP (Preparation); USES (Uses)  
 (hardening agent; **photosensitive resin** composition and cured product thereof for printed circuit board)
- RN 7727-33-5 HCAPLUS
- CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)

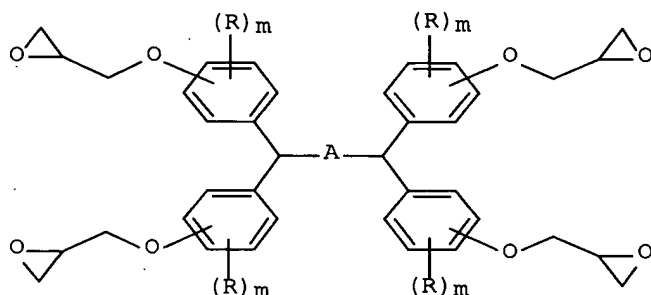


REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 4 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2005:522678 HCAPLUS Full-text  
 DOCUMENT NUMBER: 143:68354  
 TITLE: UV-sensitive resin composition as solder photoresist . and **light-sensitive** dry film for manufacturing printed circuit boards  
 INVENTOR(S): Naruse, Shoichiro; Saito, Takahide; Tsurumaki, Takahiro; Ono, Takao

PATENT ASSIGNEE(S): Tamura Kaken Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005157048	A	20050616	JP 2003-396958	20031127
PRIORITY APPLN. INFO.:			JP 2003-396958	20031127
OTHER SOURCE(S):	MARPAT 143:68354			
GI				



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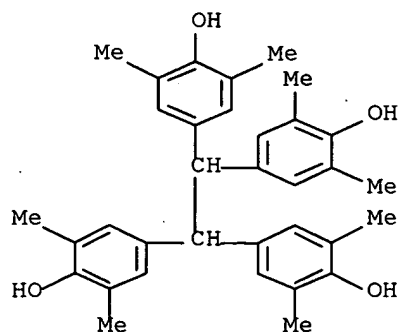
AB The title composition contains an UV-curable resin, a photopolymer. initiator, a solvent, and an agent for curing the resin, wherein the agent for curing the resin has general structure I (A = -(CH<sub>2</sub>)<sub>n</sub>-; n = 0-3; R = H, C1-4 alkyl, C1-4 alkoxy, phenylene; m = integer 1-4). The composition is alkali-developable and shows good characteristics on tackiness, sensitivity, heat-resistance, and coatability.

IT **107307-04-0 108261-54-7**, 1,1,2,2,-Tetrakis(3-methyl-4-hydroxyphenyl)ethane  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (agent for curing the **resin** in UV-sensitive **resin** composition)

RN 107307-04-0 HCAPLUS

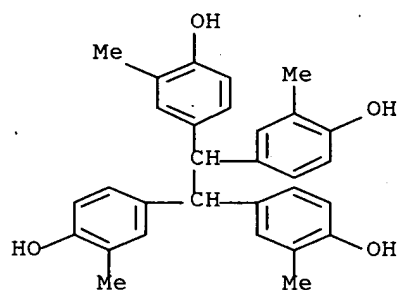
CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[2,6-dimethyl- (CA INDEX NAME)





RN 108261-54-7 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[2-methyl- (CA INDEX NAME)]

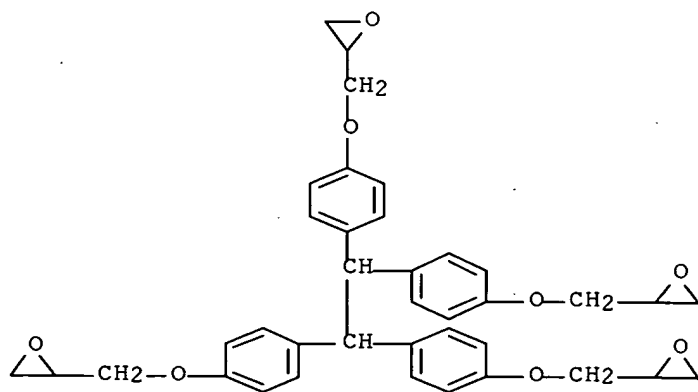


IT 7328-97-4P 123687-37-6P 135882-31-4P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(agent for curing the **resin** in UV-sensitive **resin** composition)

RN 7328-97-4 HCAPLUS

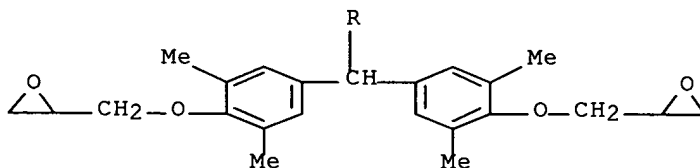
CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis- (CA INDEX NAME)



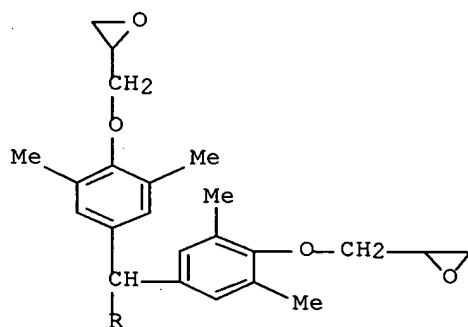
RN 123687-37-6 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis[(2,6-dimethyl-4,1-phenylene)oxymethylene]]tetrakis- (9CI) (CA INDEX NAME)

PAGE 1-A

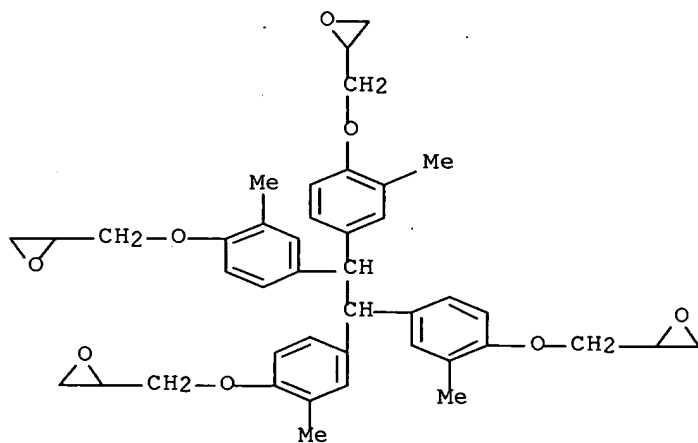


PAGE 2-A



RN 135882-31-4 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis[(2-methyl-4,1-phenylene)oxymethylene]]tetrakis- (9CI) (CA INDEX NAME)



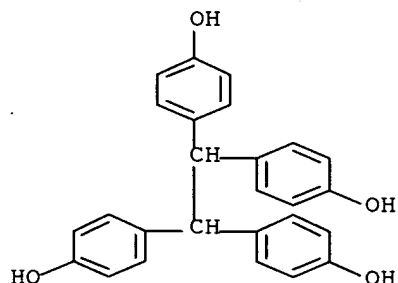
L14 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2005:492862 HCAPLUS Full-text  
 DOCUMENT NUMBER: 143:35128  
 TITLE: **Photosensitive** resin compositions having improved transparency to aligner light  
 INVENTOR(S): Tomikawa, Masao  
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005148112	A	20050609	JP 2003-380950	20031111
PRIORITY APPLN. INFO.:			JP 2003-380950	20031111

AB The comps., useful for interlayer insulation films or protective films of printed circuit boards, flat panel displays, etc., comprise polymers bearing repeating unit (CH<sub>2</sub>R<sub>1</sub>CH<sub>2</sub>NHR<sub>2</sub>ZaNH)<sub>n</sub> [R<sub>1</sub> = C<sub>2</sub>-30 bivalent organic group; R<sub>2</sub> = C<sub>6</sub>-30 tri-to-hexavalent organic group; Z = OH, ether, amino, amide, thiol, thioether, OW (W = acid- or alkali-labile leaving group); a = 1-4; n = 5-100,000], photoacid generators, and solvents at weight ratio of 100:(1-50):(100-1500). The above polymers may have another repeating unit (:CHR<sub>5</sub>CH:NHR<sub>6</sub>ZbN:) [R<sub>3</sub>, R<sub>5</sub> = C<sub>2</sub>-30 bivalent organic group; R<sub>4</sub>, R<sub>6</sub> = C<sub>6</sub>-30 tri-to-hexavalent organic group; Z = the same as above; b = 0-4; m, p = 5-100,000; 0.01 < m/(m + p) < 0.99].

IT **7727-33-5DP**, esters with naphthoquinonediazidesulfonyl chloride  
 RL: CAT (Catalyst use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (photoacid generators; polyamine-based **photosensitive resin** comps. having improved transparency to aligner light)

RN 7727-33-5 HCAPLUS  
 CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



L14 ANSWER 6 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2004:1018969 HCAPLUS Full-text  
 DOCUMENT NUMBER: 142:29998  
 TITLE: Positive-working **photosensitive** resin composition containing naphthoquinonediazide compound  
 INVENTOR(S): Tomikawa, Masao  
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

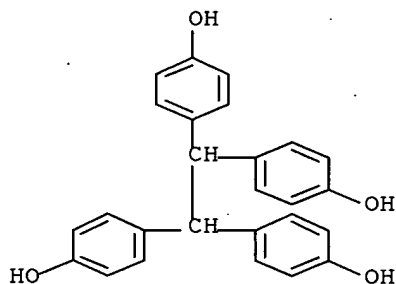
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004334089	A	20041125	JP 2003-132928	20030512
PRIORITY APPLN. INFO.:			JP 2003-132928	20030512

AB Disclosed is the pos.-working **photosensitive** resin composition comprising a resin, a naphthoquinonediazide compound, and  $\geq 1$  type of solvent having b.p. 100-250°, wherein the resin has a dissoln. rate 0.1-3 nm/s after the steps of (1)-(3): (1) dissolving the resin having a solid fraction 30 % in Et lactate, (2) forming a film on a 6 in. wafer so as to make the film thickness  $1 \pm 0.2 \mu\text{m}$  after prebaking at 90° for 20 min, and (3) dipping the film an aqueous solution containing tetramethylammonium hydroxide 2.38%. The composition is used for a heat resistant protective film for a flat panel display.

IT **7727-33-5DP**, reaction product with 5-naphthoquinonediazidesulfonic acid chloride  
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (pos.-working **photosensitive resin** composition containing naphthoquinonediazide compound)

RN 7727-33-5 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



L14 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2004:351951 HCAPLUS Full-text  
 DOCUMENT NUMBER: 140:384780

TITLE: **Photosensitive** heat-resistant resin composition for protection of elements in electronic device and precursor composition for the resin

INVENTOR(S): Tomikawa, Masao; Ikeda, Takanobu

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

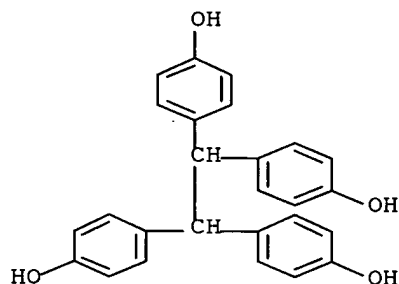
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004133088 A 20040430 JP 2002-295853 20021009  
 PRIORITY APPLN. INFO.: JP 2002-295853 20021009  
 AB The composition contains a heat-resistant resin with thermal decomposition temp  $\geq 300^\circ$ , a compound generating acids under UV or chemical laser, etc., and a component for improvement of adhesion to metals. The precursor composition contains a resin represented as  $[C(O)R_1(Y)a(CO_2R_3)cCONHR_2(Z)b(CO_2R_4)dNH]_n$  ( $R_1$  = 2-6-valent C2-30 organic group;  $R_2$  = 2-6-valent C2-40 organic group;  $R_3$ ,  $R_4$  are group containing H, C1-20 monovalent organic group, acid- or alkali-sensitive leaving group;  $Y$ ,  $Z$  = monovalent group containing OH, ether, amino, amide, thiol, and/or thioether;  $a$ ,  $b$ ,  $c$ ,  $d$  = 0-4;  $a + b + c + d > 0$ ;  $n = 10-1,000,000$ ), the acid-generating compound, the adhesion improver, and a crosslinking accelerator. A varnish containing the resin composition or the precursor composition is applied on a substrate having metal electrodes (preferably Au bumps), prebaked at  $50-150^\circ$ , exposed, developed to remove the composition on the electrode, and heated at  $280^\circ$  for 60 min to give a semiconductor device with O concentration 1-30 atomic% on the electrode. The metal electrodes are prevented from contamination by organic substances and increase of elec. resistance in the semiconductor device can be minimized.  
 IT 7727-33-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (acid generator from; in **photosensitive** heat-resistant resin composition for protection of elements in electronic device)  
 RN 7727-33-5 HCAPLUS  
 CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



L14 ANSWER 8 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2000:452607 HCAPLUS Full-text  
 DOCUMENT NUMBER: 133:96784  
 TITLE: **Photosensitive** resin precursor composition  
 INVENTOR(S): Tomikawa, Masao; Okuda, Ryoji; Fujita, Yoji  
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000187317	A	20000704	JP 1999-285482	19991006
PRIORITY APPLN. INFO.:			JP 1998-290480	A 19981013

OTHER SOURCE(S): MARPAT 133:96784  
GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

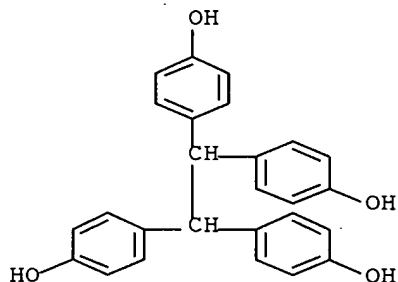
AB The title resin precursor composition contains (a) a polymer based on as structural unit of the formula  $[\text{COR}_1(\text{OH})_p(\text{CO}_2\text{R}_3)_m\text{CONHR}_2(\text{OH})_q\text{NH}]_n$  ( $\text{R}_1 = \text{C}_{\geq 2}$  organic group with 3 to 8 valences;  $\text{R}_2 = \text{C}_{\geq 2}$  organic group with 2 to 6 valences;  $\text{R}_3 = \text{H}$ , C1-10 organic group;  $n = 10\text{--}100,000$ ;  $m = 1$  or  $2$ ;  $p, q = 0\text{--}4$ ,  $p \neq q \neq 0$ ) and (b)  $\geq 1$  quinonediazide compound selected from I-IV ( $\text{Q} = \text{H}, \text{V}, \text{VI}$ , all  $\text{Q}$  groups are not  $\text{H}$  at the same in the each compd;  $x = 0\text{--}2$ ). The pos.-working **photosensitive** polyimide precursor composition shows improved alkali-developability and is especially suitable for semiconductor device fabrication.

IT 7727-33-5

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of; in preparation of quinonediazide compds. for  
**photosensitive resin** precursor composition)

RN 7727-33-5 HCAPLUS

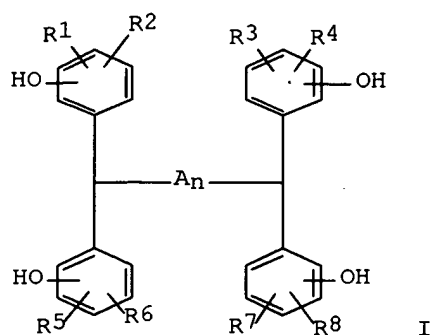
CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



L14 ANSWER 9 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 1993:180076 HCAPLUS Full-text  
DOCUMENT NUMBER: 118:180076  
TITLE: Positively-working photoresist using phenolic resin and quinonediazide  
INVENTOR(S): Kawada, Masaji; Kashiwagi, Mikifumi; Koito, Kazuko  
PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04301851	A	19921026	JP 1991-91604	19910329
JP 2817442	B2	19981030		
PRIORITY APPLN. INFO.:			JP 1991-91604	19910329

GI



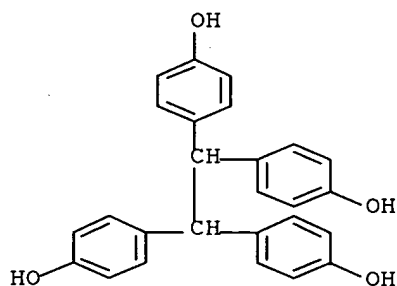
AB The title composition contains an alkali-soluble phenol resin and  $\geq 1$  **photosensitive** phenolic compds. I [A = alkylene, alkenyl, arylene; n = 0, 1; R1-8 = H, halo, OH, C1-4 alkyl, alkyl, C2-5 alkenyl, alkenyl, C6-15 aryl, aryl, C1-6 alkoxy, C1-5 acyl] whose OH are quinonediazidosulfonate- esterified and mixed-esterified with OSO<sub>2</sub>R<sub>9</sub> and/or OCOR<sub>10</sub> [R<sub>9</sub>-10 = alkyl, aryl]. The resist shows improved dimensional stability.

IT 7727-33-5

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with phenolic **resin** and quinonediazide and, for photoresist)

RN 7727-33-5 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



L14 ANSWER 10 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1980:648247 HCAPLUS Full-text  
 DOCUMENT NUMBER: 93:248247  
 ORIGINAL REFERENCE NO.: 93:39659a, 39662a  
 TITLE: Copper-laminated aluminum supports for lithographic plates  
 PATENT ASSIGNEE(S): Polychrome Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 55065591	A	19800517	JP 1978-125680	19781012

PRIORITY APPLN. INFO.: JP 1978-125680 A 19781012

AB A lithog. **photosensitive** plate is composed of (1) an Al support, (2) a 5.5-16.2 mg/m<sup>2</sup> Cu layer having lipophilic semimatte surface (surface roughness 0.20-0.25 μ), and (3) a pos.- or neg.-working photoresist layer of thickness 538-3498 mg/m<sup>2</sup>. Thus, an Al plate was treated in a 20 volume% Alumon solution (containing 50.8 g Zn/gal), then Cu-electroplated in a bath containing Rochelle salt, CuCN, Na<sub>2</sub>CO<sub>3</sub>, and NaCN to form a semimatte Cu layer, and subsequently coated with a diazo type photoresist composition. The plate was imagewise exposed, developed, and the Cu layer etched with an Fe(NO<sub>3</sub>)<sub>3</sub> solution to give a lithog. plate.

IT **30621-65-9**

RL: USES (Uses)  
(**photosensitive resin** compns. containing)

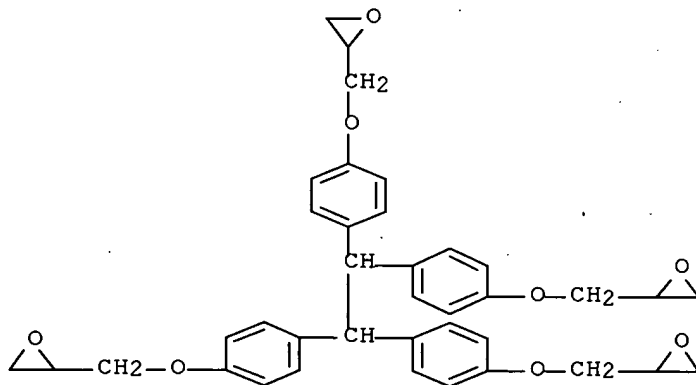
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L14 ANSWER 11 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1979:213239 HCAPLUS Full-text

DOCUMENT NUMBER: 90:213239

ORIGINAL REFERENCE NO.: 90:33807a,33810a

TITLE: Water-developable **photosensitive** lithographic plates

PATENT ASSIGNEE(S): Polychrome Corp., USA

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:



PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 53145707	A	19781219	JP 1978-43763	19780413
DK 7705650	A	19781120	DK 1977-5650	19771219
NO 7704516	A	19781121	NO 1977-4516	19771230
NL 7801624	A	19781121	NL 1978-1624	19780213
AU 7836025	A	19791115	AU 1978-36025	19780511
GB 1588620	A	19810429	GB 1978-19117	19780512
SE 7805736	A	19781120	SE 1978-5736	19780518
DE 2821776	A1	19781130	DE 1978-2821776	19780518
FR 2391488	A1	19781215	FR 1978-14930	19780519
PRIORITY APPLN. INFO.:			US 1977-798282	A 19770519

AB A metallic support is coated with a water-soluble resin and subsequently with a **photosensitive** resin composition containing a water-permeable, water-insol., lipophilic resin and a pos.- or neg.-working sensitizer to give a water-developable **photosensitive** lithog. plate. Thus, an anodized Al support was coated with a 1% poly(vinyl alc.) solution, then coated with a **photosensitive** composition containing Epon 1031 (an epoxy resin from Shell Chemical Corp.) 2, a sensitizer (a reaction product of p-diazodiphenylamine-H<sub>2</sub>SO<sub>4</sub> salt and 2-hydroxy-4-methoxybenzophenonesulfonic acid) 1, a basic blue dye 0.1, and Methyl orange 0.025 part to give a **photosensitive** lithog. plate. The **photosensitive** plate was imagewise exposed to UV light and developed with water to give a lithog. plate from which  $\geq 10,000$  prints were obtained.

IT 30621-65-9

RL: USES (Uses)

(**photosensitive resin** composition containing a sensitizer and, for water-developable lithog. plates)

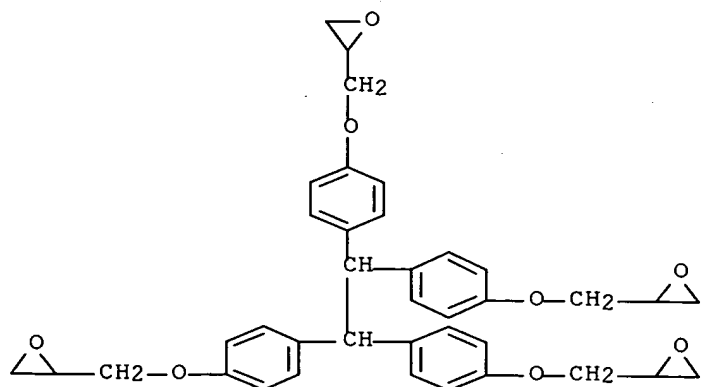
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L14 ANSWER 12 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1979:46590 HCAPLUS Full-text

DOCUMENT NUMBER: 90:46590  
 ORIGINAL REFERENCE NO.: 90:7364h,7365a  
 TITLE: **Photosensitive** diazo resins for color proofs  
 INVENTOR(S): Burkle, Stephen Edward; Deutsch, Albert  
 PATENT ASSIGNEE(S): Polychrome Corp., USA  
 SOURCE: Ger. Offen., 12 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2810310	A1	19780928	DE 1978-2810310	19780309
US 4132553	A	19790102	US 1977-780948	19770324
JP 53119996	A	19781019	JP 1977-137725	19771116
NL 7800140	A	19780926	NL 1978-140	19780105
GB 1584849	A	19810218	GB 1978-11334	19780322
FR 2385123	A1	19781020	FR 1978-8558	19780323
FR 2385123	B1	19850628		

PRIORITY APPLN. INFO.: US 1977-780948 A 19770324

AB **Photosensitive** diazo resins with a resinous binder and dyes soluble in organic solvents are coated on a transparent film, exposed, and developed as yellow, cyan, magenta, and black color sepsns. to be superposed as proofs for comparison with the original. The diazo resins are carboxylates or sulfonates, preferably 2-hydroxy-4-methoxybenzophenone-5-sulfonates, of paraformaldehyde condensates of diazonium salts with 4-phenoxy or 4-phenylthio groups, may contain Me, MeO, or EtO groups, and have a mol. weight of 60,000-80,000. Thus, p-phenoxybenzenediazonium ZnCl<sub>2</sub> double salt was condensed with paraformaldehyde at 5°, and precipitated with ZnCl<sub>2</sub>, and treated with the sulfonic acid. For a yellow proof the sensitizer 40.2 g with Epon 1031 resin 60.2, Astrazon Yellow MS-40 6, and Maxillon Brilliant Flavin MS-40 24.1 g was dissolved in a mixture of HOCH<sub>2</sub>CH<sub>2</sub>OMe 300, CH<sub>2</sub>Cl<sub>2</sub> 200, C<sub>2</sub>H<sub>4</sub>Cl<sub>2</sub> 300, and MeOH 200 mL, and applied to a 50µ polyester film at 0.01-0.2 mg/cm<sup>2</sup>.

IT **30621-65-9**

RL: USES (Uses)

(**photosensitive** composition containing diazo **resins** and, for color proofing preparation)

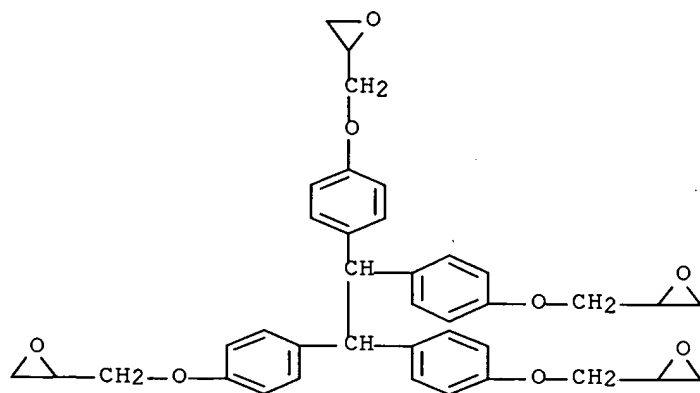
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L14 ANSWER 13 OF 13 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1977:131116 HCAPLUS Full-text  
 DOCUMENT NUMBER: 86:131116  
 ORIGINAL REFERENCE NO.: 86:20563a,20566a  
 TITLE: Photocopying material  
 INVENTOR(S): Houtermans, Antonius H. I.  
 PATENT ASSIGNEE(S): Oce-van der Grinten N. V., Neth.  
 SOURCE: Ger. Offen., 19 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2607091	A1	19760902	DE 1976-2607091	19760221
FR 2302549	A1	19760924	FR 1976-4940	19760223
PRIORITY APPLN. INFO.:			GB 1975-7920	A 19750225

AB Neg. working 0.75-1.5 g/m<sup>2</sup> coatings of a diazo resin with an oleophilic resinous binder (Brit. 1,280,885; CA 78:50604f) can be developed without use of a surfactant rendering the resin water-soluble in the developer by incorporating 30-40% surfactant in the layer and simply spraying or rubbing it with water for development. Environmental pollution is thus greatly reduced. Quaternary ammonium salts, such as triethanolamine lauryl sulfate and poly(vinylpyrrolidone), are suitable. Some surfactants require water or a C4-7 alc. as cosolvent in the coatings. Thus, a printing plate with a 1 g/m<sup>2</sup> coating was obtained by applying to an Al sheet a solution of com. Diazo Litho A BF4 resin 4.5, Epon 1006 epoxy resin 1.5, Armours Aquad T 5 g and Me Cellosolve. A water current developed the plate yielding several thousand excellent prints.

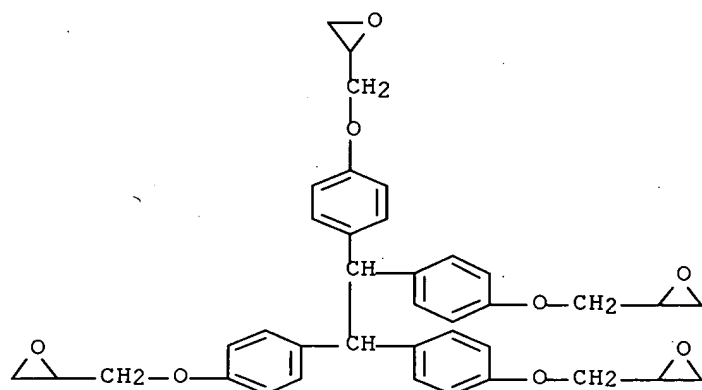
IT **30621-65-9**  
 RL: USES (Uses)  
 (photosensitive compns. containing diazo resin,  
 surfactants and, neg.-working water-developable, for printing plates)

RN 30621-65-9 HCAPLUS

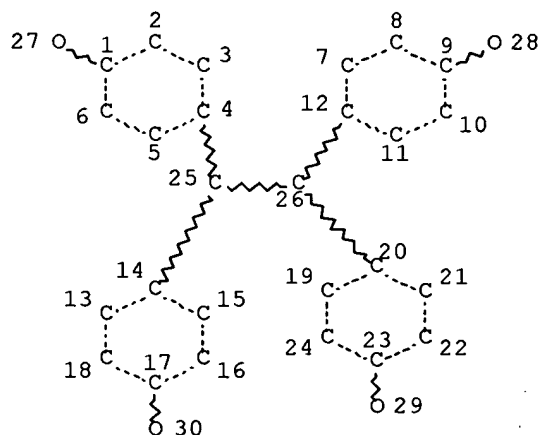
CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4  
CMF C38 H38 O8



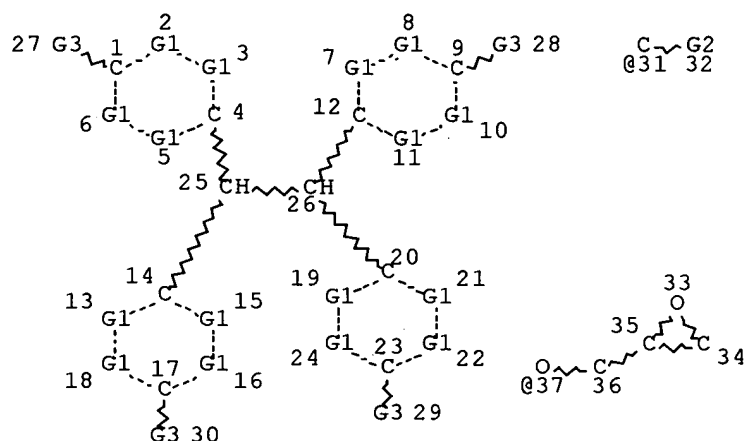
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L1 STR



NODE ATTRIBUTES:  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 30

STEREO ATTRIBUTES: NONE  
L3 691 SEA FILE=REGISTRY SSS FUL L1  
L6 STR



VAR G1=CH/31  
 VAR G2=ME/ET/I-PR/N-PR/I-BU/N-BU/T-BU/S-BU/X  
 VAR G3=OH/37

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 37

STEREO ATTRIBUTES: NONE

L7 SCR 2127  
 L8 26 SEA FILE=REGISTRY SUB=L3 SSS FUL L6 NOT L7  
 L9 360 SEA FILE=HCAPLUS ABB=ON PLU=ON L8  
 L10 809777 SEA FILE=HCAPLUS ABB=ON PLU=ON (RESINS/CV OR RESIN/CV OR  
 RESINIFICATION/CV OR RESINOLS/CV OR GUM/CV OR "GUM RESINS"/CV  
 OR GUMS/CV OR "GUMS (RESINOUS)"/CV OR "NATURAL RESINS"/CV OR  
 "RESINOUS GUMS"/CV) OR RESIN  
 L12 122999 SEA FILE=HCAPLUS ABB=ON PLU=ON LIGHT-SENSITIVE MATERIALS/CV  
 OR PHOTSENS? OR LIGHT(2A) SENSIT?  
 L13 98 SEA FILE=HCAPLUS ABB=ON PLU=ON L9(L) L10  
 L14 13 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND L13  
 L22 41 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 AND L12  
 L23 28 SEA FILE=HCAPLUS ABB=ON PLU=ON L22 NOT L14

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L23 ANSWER 1 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2003:113124 HCAPLUS Full-text  
 DOCUMENT NUMBER: 138:161107

TITLE: Negative-working **light-sensitive** material  
 composition for **light-sensitive** lithographic  
 printing master plates

INVENTOR(S): Furukawa, Akira  
 PATENT ASSIGNEE(S): Mitsubishi Paper Mills, Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent

LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

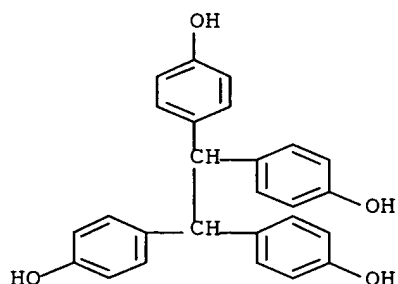
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003043687	A	20030213	JP 2001-227623	20010727
PRIORITY APPLN. INFO.:			JP 2001-227623	20010727

AB The title composition contains polymer and a water-soluble azide, wherein the polymer has styrene double bonds. The composition provides the master plates of the good properties on resolution, sensitivity, contact, storageability, and development.

IT **7727-33-5**, 1,1,2,2-Tetrakis(4-hydroxyphenyl)ethane  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (neg.-working **light-sensitive** material composition for  
**light-sensitive** lithog. printing master plates)

RN 7727-33-5 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



L23 ANSWER 2 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2001:429491 HCAPLUS Full-text  
 DOCUMENT NUMBER: 135:38920  
 TITLE: On-press process of lithographic plates having IR laser sensitive mask layer  
 INVENTOR(S): Teng, Gary Ganghui  
 PATENT ASSIGNEE(S): USA  
 SOURCE: U.S., 9 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6245481	B1	20010612	US 1999-416843	19991012
PRIORITY APPLN. INFO.:			US 1999-416843	19991012

AB This patent describes on-press process of a lithog. plate comprising a substrate, a **photosensitive** layer, and a top laser sensitive mask layer. The plate is exposed by first digitally exposing the plate with an IR radiation to selectively remove or render transparent to an actinic radiation exposed areas of the mask layer and then overall exposing the plate with the actinic radiation to cause hardening or solubilization of the **photosensitive** layer in the IR laser exposed areas. The exposed plate is processed on a printing

press by contacting the plate with ink and/or fountain solution during initial press operation to remove the mask layer and develop the **photosensitive** layer. Optionally, an ink and/or fountain solution soluble or dispersible interlayer may be interposed between the mask layer and the **photosensitive** layer.

IT 30621-65-9, Epon-1031

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(lithog. printing plate comprising **photosensitive** layer and

IR laser sensitive mask layer)

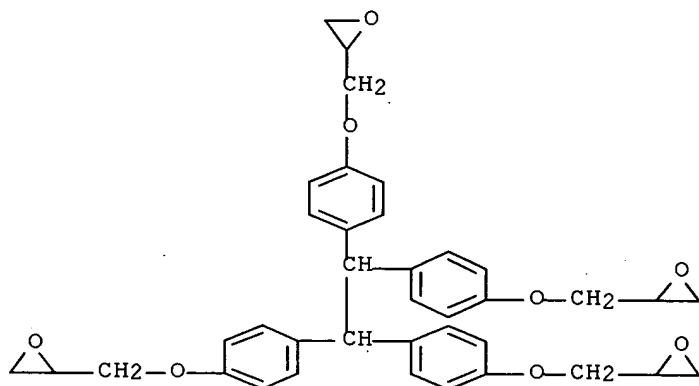
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 3 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:474295 HCAPLUS Full-text

DOCUMENT NUMBER: 133:96797

TITLE: **Photosensitive** resin composition containing polybenzoxazole precursor and quinonediazide compound

INVENTOR(S): Tomikawa, Masao; Okuda, Ryoji; Fujita, Yoji

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000194133	A	20000714	JP 1999-286546	19991007
PRIORITY APPLN. INFO.: GI			JP 1998-299437	A 19981021

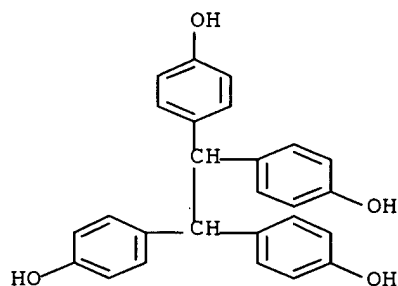
\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The title resin precursor composition contains (a) a polymer based on a structural unit  $[\text{COR1CONHR2}(\text{OH})_q\text{NH}]_n$  ( $\text{R1} = \text{C} \geq 2$  divalent organic group;  $\text{R2} = \text{C} \geq 2$  organic group with 3 to 6 valences;  $n = 10\text{--}1000,000$ ;  $q = 1\text{--}4$ ) and (b)  $\geq 1$  quinonediazide compound selected from I-IV ( $\text{Q} = \text{V}, \text{VI}, \text{H}$ ; all the  $\text{Q}$  groups in the each compound are not  $\text{H}$  at the same time;  $x = 0\text{--}2$ ). The pos.-working polybenzoxazole precursor composition shows improved alkali-developability.

IT **7727-33-5**, 1,1,2,2-Tetrakis(4-hydroxyphenyl)ethane  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of naphthoquinonediazide sulfonate)

RN 7727-33-5 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



L23 ANSWER 4 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:665138 HCAPLUS Full-text

DOCUMENT NUMBER: 131:305139

TITLE: **Photosensitive** compound used for resist in manufacture of semiconductor device

INVENTOR(S): Oshita, Atsushi; Kumata, Teruhiko; Fujino, Atsuko

PATENT ASSIGNEE(S): Mitsubishi Electric Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11286464	A	19991019	JP 1998-276997	19980930
PRIORITY APPLN. INFO.:			JP 1998-22457	A 19980204

AB The **photosensitive** compound contains a cluster-type mol. having an alkali-soluble group, such as  $\text{OH}$  and  $\text{COOH}$ . A mol. weight of the cluster-type mol. is 500-2,000. A **photosensitive** composition containing the **photosensitive** composition and a photoacid is applied on a substrate, imagewise exposed by an energy ray, and developed.

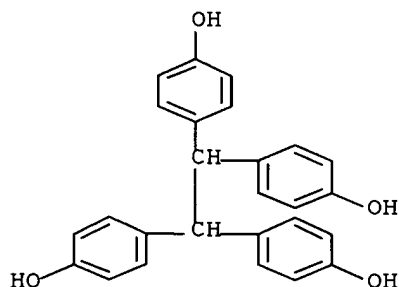
IT **7727-33-5**  
 RL: NUU (Other use, unclassified); USES (Uses)



(**photosensitive** compound used for resist in manufacture of semiconductor device)

RN 7727-33-5 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



L23 ANSWER 5 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1998:211117 HCAPLUS Full-text  
 DOCUMENT NUMBER: 128:257230  
 TITLE: Preparation of tetrakisphenolethanes  
 INVENTOR(S): Hyodo, Hiroshi; Inatomi, Shigeki  
 PATENT ASSIGNEE(S): Asahi Organic Chemicals Industry Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10087537	A	19980407	JP 1996-243690	19960913
JP 3381819	B2	20030304		
PRIORITY APPLN. INFO.:			JP 1996-243690	19960913
OTHER SOURCE(S):			CASREACT 128:257230	

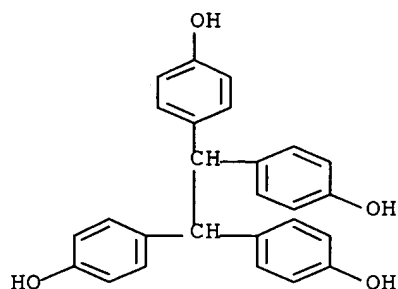
AB Title compds., useful as materials for thermosetting epoxy resins, curing agents for epoxy resins, ballasts of **photosensitive** agents for photoresists, modifiers for cresol novolak resins, antioxidants, host compds. for inclusion compds., etc. (no data), are prepared by reaction of phenols with OCHCHO in the presence of acid catalysts and  $\geq 5$  weight% Me<sub>2</sub>CO (based on phenols) at  $\leq 60^\circ$ . PhOH was reacted with OCHCHO aqueous solution in the presence of H<sub>2</sub>SO<sub>4</sub> and Me<sub>2</sub>CO at  $40^\circ$  for 12 h to give a mixture containing tetrakisphenolethane acetone inclusion compds., which was treated with H<sub>2</sub>O at  $15^\circ$  overnight to give 22.7% (4-HOC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>CHCH(C<sub>6</sub>H<sub>4</sub>OH-4)<sub>2</sub>.

IT 7727-33-5P, 1,1,2,2-Tetrakis(4-hydroxyphenyl)ethane  
 108261-54-7P

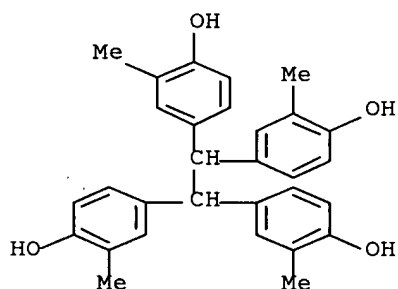
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (preparation of tetrakisphenolethanes by condensation of phenols with glyoxal in presence of acetone and acid catalysts)

RN 7727-33-5 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



RN 108261-54-7 HCAPLUS  
 CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[2-methyl- (CA INDEX  
 NAME)



L23 ANSWER 6 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1995:804784 HCAPLUS Full-text  
 DOCUMENT NUMBER: 123:315749  
 TITLE: Preparation of high-purity tetrakisphenolethanes  
 INVENTOR(S): Inatomi, Shigeki; Kai, Isao; Mori, Shigeru  
 PATENT ASSIGNEE(S): Asahi Organic Chem Ind, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07173089	A	19950711	JP 1991-122888	19910426
JP 2897850	B2	19990531		

PRIORITY APPLN. INFO.: JP 1991-122888 19910426

AB The title compds., useful as materials for thermosetting resins, curing agents for epoxy resins, ballasts of **photosensitive** agent for photoresists, modifiers for phenolic resins, antioxidants, etc., are prepared in high purity by condensation of phenols with glyoxal in the presence of acidic catalysts, concentration of the reaction mixture to remove volatile components, and then treatment of the residual matter with organic solvents capable of dissolving low-mol.-weight compds. and higher condensates and acting as poor solvents to the title compds. A mixture of PhOH, glyoxal, and p-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>H was heated

under reflux over 1 h and further stirred at the reflux temperature for 6 h. Subsequently the reaction mixture was vacuum-concentrated and the solid residue was ground and treated with acetone under stirring to give 11.3% (4-HOC<sub>6</sub>H<sub>4</sub>)<sub>2</sub>CHCH(C<sub>6</sub>H<sub>4</sub>OH-4)<sub>2</sub> with purity 94.4%.

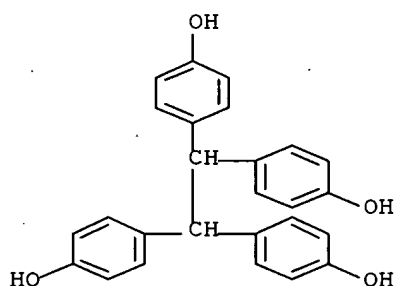
IT 7727-33-5P, 1,1,2,2-Tetrakis(4-hydroxyphenyl)ethane  
108261-54-7P

RL: IMF (Industrial manufacture); PUR (Purification or recovery); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation of tetrakisphenolethanes in high purity by acid-catalyzed condensation of phenols with glyoxal, concentration, and treatment with organic solvents)

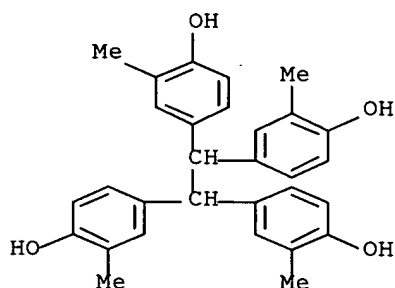
RN 7727-33-5 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



RN 108261-54-7 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[2-methyl- (CA INDEX NAME)]



L23 ANSWER 7 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:543401 HCAPLUS Full-text

DOCUMENT NUMBER: 122:278145

TITLE: **Photosensitive** composition and method for forming patterns

INVENTOR(S): Hayashi, Takao; Onishi, Yasunobu; Sato, Kazuo; Chiba, Kenji; Miyamura, Masataka

PATENT ASSIGNEE(S): Kabushiki Kaisha Toshiba, Japan

SOURCE: Ger. Offen., 58 pp.

CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 4408318	A1	19940915	DE 1994-4408318	19940311
DE 4408318	C2	19990909		
JP 06266111	A	19940922	JP 1993-79113	19930312
JP 3293940	B2	20020617		
KR 148624	B1	19981102	KR 1994-4755	19940311
DE 4447786	B4	20050504	DE 1994-4447786	19940311
JP 07146558	A	19950606	JP 1994-150243	19940630
JP 3441167	B2	20030825		
US 6703181	B1	20040309	US 1996-709879	19960909
PRIORITY APPLN. INFO.:			JP 1993-79113	A 19930312
			JP 1993-189396	A 19930630
			DE 1994-4408318	A 19940311
			US 1994-208811	B1 19940311
			US 1995-494303	B1 19950623

OTHER SOURCE(S): MARPAT 122:278145

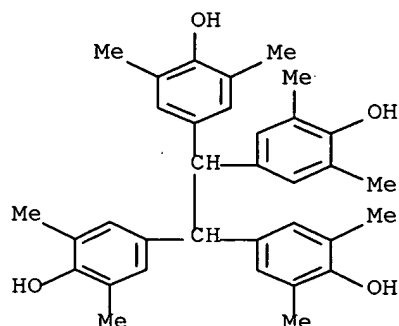
AB The title composition comprises (1) an alkali-soluble polymer containing an alkali-soluble group protected by an acid-labile group, (2) a photoacid generator, and (3)  $\geq 1$  compound selected from imidazole, alanine, adenine, adenosine, and a quaternary ammonium compound and which is mixable in a resist film and/or (4) a phenolic compound. The material has high sensitivity to short wavelengths, and high solubility and can be used for fine resist structures.

IT 107307-04-0

RL: MOA (Modifier or additive use); USES (Uses)  
 (photoresist composition)

RN 107307-04-0 HCAPLUS

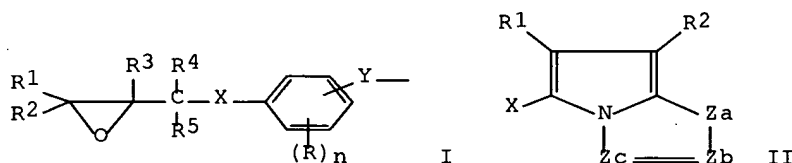
CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[2,6-dimethyl- (CA  
 INDEX NAME)



L23 ANSWER 8 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1994:641584 HCAPLUS Full-text  
 DOCUMENT NUMBER: 121:241584  
 TITLE: photographic color image formation

INVENTOR(S): Deguchi, Yasuaki  
 PATENT ASSIGNEE(S): Fuji Photo Film Co Ltd, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 67 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05333503	A	19931217	JP 1992-139348	19920529
US 5415982	A	19950516	US 1993-68350	19930528
PRIORITY APPLN. INFO.: GI			JP 1992-139348	A 19920529



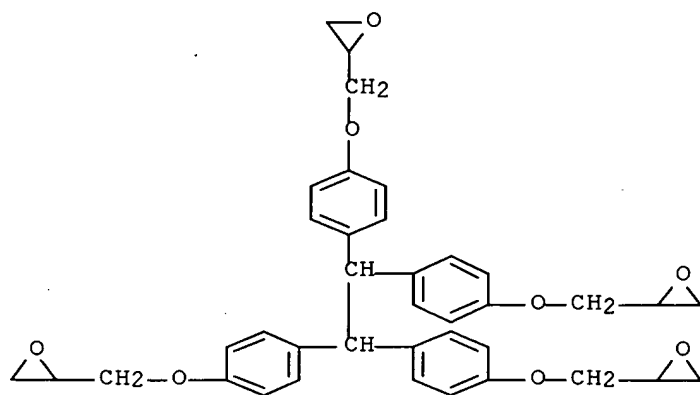
AB A full color Ag halide photog. material contains in its Ag halide **photosensitive** layer or non-**photosensitive** hydrophilic colloid layer,  $\geq 1$  of water-insol. epoxy compds. having  $\geq 1$  group I ( $R_1-5 = H$ , alkyl, aryl;  $R =$  substituent;  $n = 0-4$ ;  $Y$  divalent group;  $X = O, S, N(R')$ ;  $R = H$ , acyl, alkylsulfonyl, arylsulfonyl, aryl, heterocycle,  $C(R_6)(R_7)(R_8)$ ;  $R_6-8 =$  alkyl, or epoxy group of left side of I;  $R_6, R_7$  may be  $H$ ;  $R$  may be same or different when  $n = 2-4$ ;  $R'$  with  $R$  or 2  $R$  may joint to form a 5-7-membered ring). The cyan coupler-containing **photosensitive** Ag halide emulsion layer contains pyrroleazo cyan coupler II ( $Z_a = NH, CHR_3$ ;  $Z_b, Z_c = CR_4, N$ ;  $R_1-3 =$  electron attractive group of Hammett's  $\sigma_p$  value  $\geq 0.20$ ; the  $\sigma_p$  sum of  $R_1$  and  $R_2$  is  $\geq 0.65$ ;  $R_4 = H$ , substituent; multi  $R_4$  may be same or different;  $X = H$ , group releasable on reaction with an oxidized developer; the mol. may be a polymer when  $R_1-4$  or  $X$  is a divalent group). The supply of the coloring developer solution used is in the range of 20-120 mL per m<sup>2</sup> of photog. material. Images with superior cyan color reproducibility and stability can be obtained by rapid processing.

IT **7328-97-4**

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
 (photog. material containing)

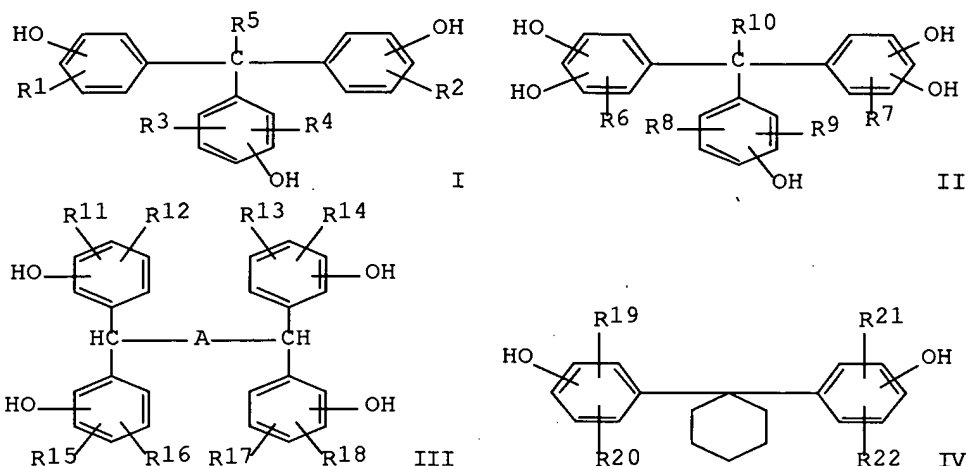
RN 7328-97-4 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis- (CA INDEX NAME)



L23 ANSWER 9 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1994:521745 HCAPLUS Full-text  
 DOCUMENT NUMBER: 121:121745  
 TITLE: Positive-working resist composition containing  
 quinonediazidesulfonic acid ester and polyhydric  
 compound  
 INVENTOR(S): Kawada, Masaji; Kusunoki, Tetsuaki; Kashiwagi,  
 Motofumi; Fujii, Toshiaki  
 PATENT ASSIGNEE(S): Nippon Zeon Co, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 23 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06059447	A	19940304	JP 1992-235354	19920811
PRIORITY APPLN. INFO.:			JP 1992-235354	19920811
OTHER SOURCE(S):	MARPAT 121:121745			
GI				



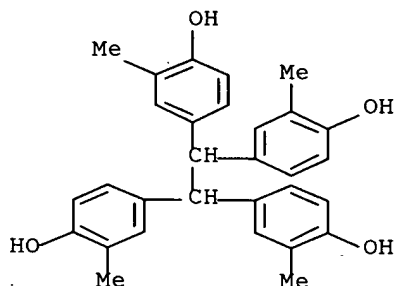
AB The resist composition comprises (1) an alkali-soluble phenolic resin, (2) a quinonediazidesulfonic acid ester of  $\geq 1$  polyhydric compound selected from I (R1-4 = H, halo, OH, C1-4 alkyl, C2-5 alkenyl, C1-4 alkoxy; R5 = H, C1-3 alkyl, C2-5 alkenyl, aryl; sum of OH nos. = 3-4), II (R6-9 = H, halo, C1-4 alkyl, C2-5 alkenyl, C1-4 alkoxy; R10 = H, C1-3 alkyl, C2-5 alkenyl, aryl, sum of OH nos. = 5; R6  $\neq$  R7  $\neq$  R8  $\neq$  R9  $\neq$  H), and III [R11-18 = H, halo, OH, C1-4 alkyl, C2-5 alkenyl, C1-4 alkoxy; A = none, alkylene, alkenyl, arylene (all may be substituted)] as a **photosensitive** agent, and (3) a polyhydric compound IV (R19-22 = H, halo, C1-8 alkyl, C2-5 alkenyl, C1-4 alkoxy, Ph-substituted alkoxy). The composition shows high sensitivity and resolution, and are useful for making semiconductor devices.

IT **108261-54-7**

RL: RCT (Reactant); RACT (Reactant or reagent)  
(esterification of, with naphthoquinonediazide-sulfonyl chloride)

RN 108261-54-7 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[2-methyl- (CA INDEX NAME)]



L23 ANSWER 10 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

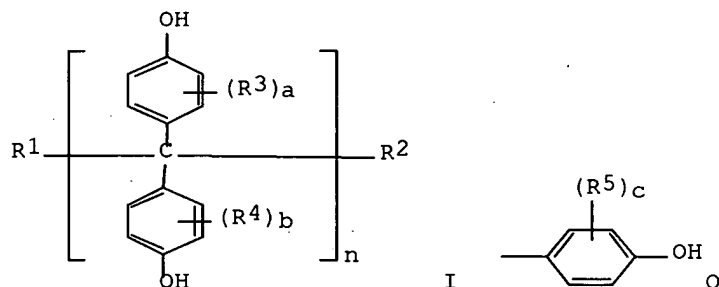
ACCESSION NUMBER: 1994:496021 HCAPLUS Full-text

DOCUMENT NUMBER: 121:96021

TITLE: Positive-working photoresist composition and

INVENTOR(S): patterning method using same  
 Nunomura, Masataka; Hashimoto, Michiaki; Kasuya, Kei;  
 Sasaki, Mamoru  
 PATENT ASSIGNEE(S): Hitachi Chemical Co Ltd, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05173326	A	19930713	JP 1991-341253	19911224
PRIORITY APPLN. INFO.:			JP 1991-341253	19911224
OTHER SOURCE(S):	MARPAT 121:96021			
GI				



AB The title photoresist composition contains I [R1,2 = H, Me, Et; R2 = H, Q; R3-5 = H, C≤3 alkyl, C≤3 alkoxy; a, b, c = 0-3; n = 1, 2], an alkali-soluble resin, and a naphthoquinone-1,2-diazide **photosensitizer**. The title patterning method comprises coating a substrate with the above photoresist composition, pattern-wise exposing to light, and developing. This composition shows a high sensitivity and resolving power, and good heat resistance.

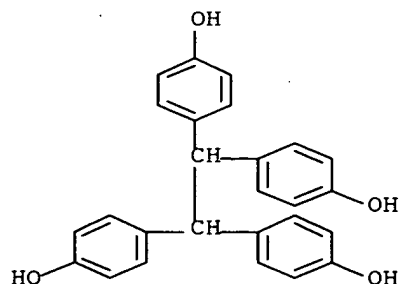
IT 7727-33-5

RL: USES (Uses)

(photoresist composition from)

RN 7727-33-5 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)





L23 ANSWER 11 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1994:422528 HCAPLUS Full-text  
 DOCUMENT NUMBER: 121:22528  
 TITLE: Positive-working electron-beam resist composition and  
 patterning using same  
 INVENTOR(S): Kataoka, Mutsuo; Sasayama, Norio  
 PATENT ASSIGNEE(S): Toray Industries, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 58 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05127375	A	19930525	JP 1991-288959	19911105
JP 2626363	B2	19970702		

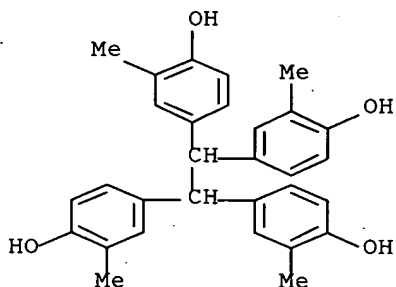
PRIORITY APPLN. INFO.: JP 1991-288959 19911105

AB The title composition contains as a resin component a novolak based on a mixture of m-cresol/p-cresol having a mol ratio 10/90-50/50 and a dimer content <10 %, as an additive a polyhydric phenol containing benzene rings 2-6 and phenolic OH groups 2-12, and as a **photosensitive** agent a polyhydric phenol containing benzene rings 2-4 and phenolic OH groups 3-6 and whose average OH groups 20-60 % are esterified by 1, 2-naphthoquinonediazido-4-sulfonic acid. The title patterning comprises the step of developing an electron-beam patternwise exposed resist with an alkali aqueous solution containing 2-diethylaminoethanol. The resist shows superior high resolution, high sensitivity, and resistance to dry etching.

IT **108261-54-7**  
 RL: USES (Uses)  
 (pos.-working electron-beam resist composition containing)

RN 108261-54-7 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[2-methyl- (CA INDEX NAME)



L23 ANSWER 12 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1993:49139 HCAPLUS Full-text  
 DOCUMENT NUMBER: 118:49139  
 TITLE: Shelf life improved silver halide color photographic  
 material for laser scanning exposures and imaging

method using same  
 INVENTOR(S): Kawai, Kiyoshi  
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 38 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04143754	A	19920518	JP 1990-267591	19901005
PRIORITY APPLN. INFO.:			JP 1990-267591	19901005
OTHER SOURCE(S):			MARPAT 118:49139	

AB In the title color photog. material possessing  $\geq 1$  photocosmitive layers containing Ag halide emulsion grains spectrally sensitized by sensitizer dips with spectral sensitivity maximum at  $\geq 730$  nm, the **photosensitive** material contains  $\geq 1$  water-insol. epoxy compds. selected from I-III [R1-3 = alkyl, halo; L1, L2 = divalent aliphatic; M = O, N; A = polyvalent linking group; a, b, c = 0-4; z, y = 0-20; l = 1,2; m = 2-4]. Imaging is effected by scanning exposing at an exposure time of  $\leq 10^{-4}$  s/picture element, and developing.

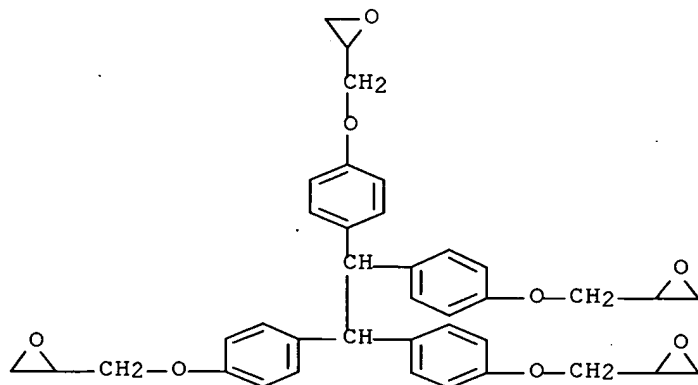
IT **7328-97-4**

RL: USES (Uses)

(additive, for scanning exposure photog. paper)

RN 7328-97-4 HCAPLUS

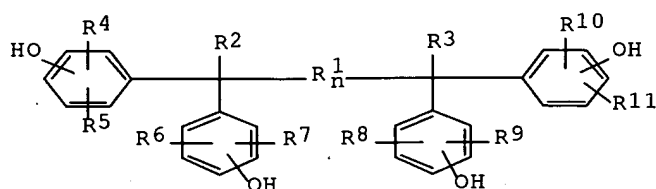
CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis- (CA INDEX NAME)



L23 ANSWER 13 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1992:501053 HCAPLUS Full-text  
 DOCUMENT NUMBER: 117:101053  
 TITLE: Positive photoresist composition containing polyhydric phenolic compound  
 INVENTOR(S): Oseko, Hiroki; Kataoka, Mutsuo  
 PATENT ASSIGNEE(S): Toray Industries, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent

LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04012356	A	19920116	JP 1990-114476	19900428
PRIORITY APPLN. INFO.: GI			JP 1990-114476	19900428



AB The composition contains a novolak resin, a quinonediazide compound, and phenolic compound I (R 1 = divalent hydrocarbon residue; n = 0, 1; R2, R3 = H, alkyl, aryl, aralkyl; R2 and R3 may form a ring; R4-11 = H, halo, OH, alkyl). The composition with high **photosensitivity** is useful for high-d. integrated circuit fabrication.

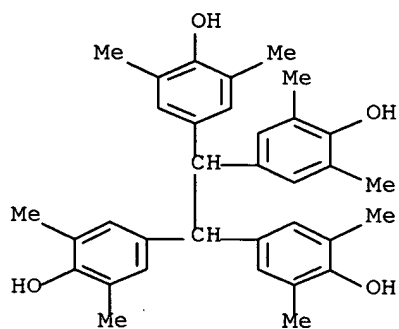
IT 107307-04-0 108261-54-7

RL: USES (Uses)

(pos. photoresists containing, for high sensitivity)

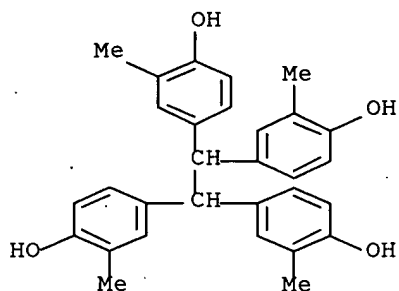
RN 107307-04-0 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[2,6-dimethyl- (CA INDEX NAME)



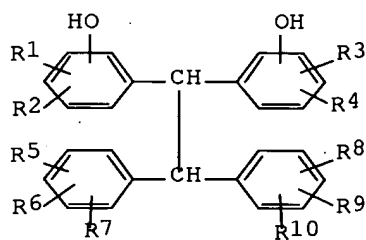
RN 108261-54-7 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[2-methyl- (CA INDEX NAME)

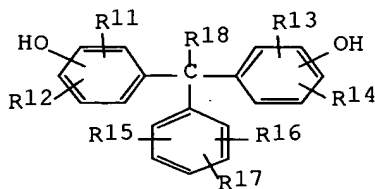


L23 ANSWER 14 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1992:13391 HCAPLUS Full-text  
 DOCUMENT NUMBER: 116:13391  
 TITLE: Positive-working photoresist compositions  
 INVENTOR(S): Oie, Masayuki; Kawada, Masaji; Yamada, Takamasa  
 PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

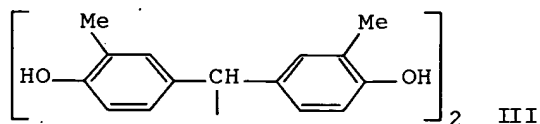
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03200254	A	19910902	JP 1989-342195	19891228
JP 08007435	B	19960129		
PRIORITY APPLN. INFO.: GI			JP 1989-342195	19891228



I



II



III

AB The title compns. consist of alkali-soluble phenolic resins, **photosensitive** quinonediazidesulfonate esters, and compds. I and/or II as sensitizers (R1-10 = H, halo, OH, C1-3-alkyl, alkenyl or alkoxy; R11-17 = H, halo, C1-3-alkyl, alkenyl or alkoxy; R18 = H, alkyl). Excellent performances as resist, especially high sensitivity and resolution of  $\leq 1\text{-}\mu\text{m}$  patterns are obtained.

Thus, a composition containing m-cresol-p-cresol-HCHO novolak resin 100, 1,2-naphthoquinonediazide-5-sulfonate ester of 2,3,4,4'-tetrahydroxy benzophenone 28, and III 10 parts was applied on Si wafer. Exposure to g-line and development with 2.38% Me<sub>4</sub>NOH gave 1.13- $\mu$ m-thick pattern with 0.45- $\mu$ m line and space, with 80 mJ/cm<sup>2</sup> sensitivity. This pattern served well as mask for dry etching with CF<sub>4</sub> plasma.

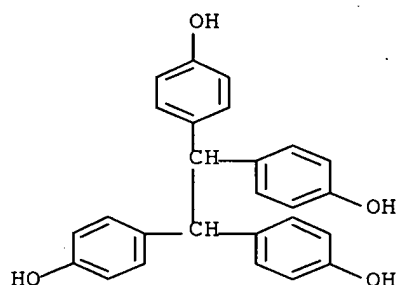
IT 7727-33-5 83159-21-1 108261-54-7

RL: USES (Uses)

(photoresists containing, pos.-working, for high resolution and sensitivity)

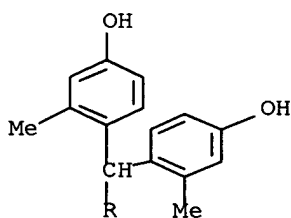
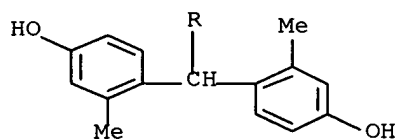
RN 7727-33-5 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



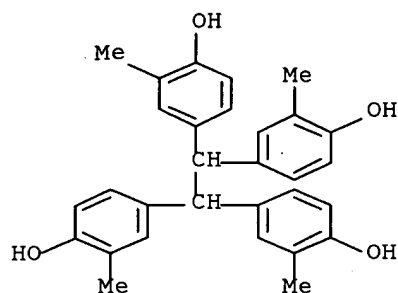
RN 83159-21-1 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[3-methyl- (9CI) (CA INDEX NAME)



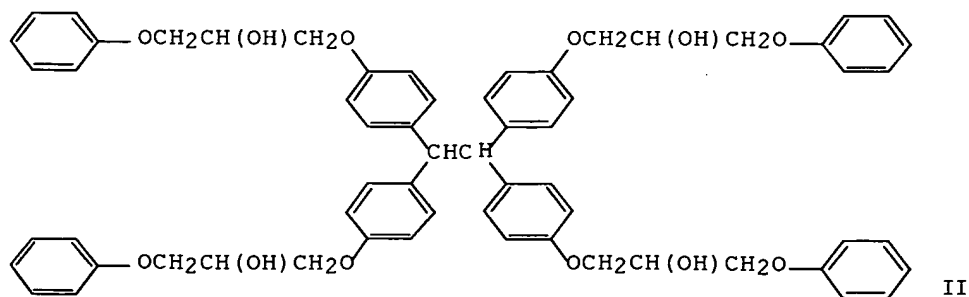
RN 108261-54-7 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[2-methyl- (CA INDEX NAME)



L23 ANSWER 15 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1986:216569 HCAPLUS Full-text  
 DOCUMENT NUMBER: 104:216569  
 ORIGINAL REFERENCE NO.: 104:34171a, 34174a  
 TITLE: Water-developable, bilayer or monolayer,  
 negative-working, lithographic plate  
 INVENTOR(S): Browne, Alan Robert  
 PATENT ASSIGNEE(S): W. R. Grace and Co., USA  
 SOURCE: Eur. Pat. Appl., 21 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 170041	A2	19860205	EP 1985-107724	19850621
EP 170041	A3	19880107		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
US 4785062	A	19881115	US 1984-636419	19840731
US 4612276	A	19860916	US 1985-718670	19850513
AU 8544419	A	19860206	AU 1985-44419	19850628
AU 571707	B2	19880421		
JP 61093446	A	19860512	JP 1985-169649	19850731
PRIORITY APPLN. INFO.:			US 1984-636419	A 19840731
OTHER SOURCE(S):	MARPAT 104:216569			
GI				



AB A H<sub>2</sub>O-developable neg.-working **photosensitive** plate for the preparation of a lithog. plate is comprised of a **photosensitive** layer containing a diazo resin and a reaction product of a phenol derivative with an O-epoxyalkylated tetrakis(hydroxyphenyl)alkane (I) resin. The phenol derivative-I resin reaction product may be used as an upper layer over a lower layer of the diazo resin or as a homogeneous mixture with the diazo resin in the **photosensitive** plate. Thus, a solution of an epoxy resin (EPON-1031) 20.0, PhOH 12.0, and hexadecyltrimethylammonium bromide 3.0 g in MEK 250 mL was heated to reflux for 24 h to give a reaction product having the structure II. A solution of a diazo resin (Diazo Resin Number 4, Type L) 20 g in H<sub>2</sub>O 500 mL was coated on a LKK silicated Al plate, dried, overcoated with a solution of II 10 g in MEK 250 mL, dried, exposed to a 1000 W Hg lamp through a neg., developed in tap H<sub>2</sub>O, and treated with Western A.G.E. finisher, to give a lithog. plate which readily accepted ink and printed clean good-quality copies.

IT 30621-65-9

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with phenol derivative, in preparation of water-developable neg.-working **photosensitive** compns. for preparation of lithog. plates)

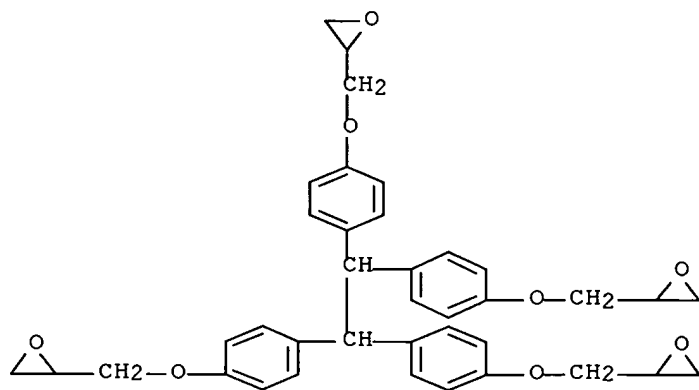
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L23 ANSWER 16 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1983:585026 HCAPLUS Full-text

DOCUMENT NUMBER: 99:185026

ORIGINAL REFERENCE NO.: 99:28269a,28272a

TITLE: Radiation-sensitive compositions with a negative action for producing lithographic plates

INVENTOR(S): Rowe, William; Golda, Eugene; Wilkes, Alan

PATENT ASSIGNEE(S): Polychrome Corp., USA

SOURCE: Fr. Demande, 18 pp.  
 CODEN: FRXXBL  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2520520	A1	19830729	FR 1983-1131	19830125
US 4447512	A	19840508	US 1982-342333	19820125
JP 58174943	A	19831014	JP 1983-11230	19830125
JP 04010619	B	19920225		
CA 1243878	A1	19881101	CA 1983-420206	19830125
GB 2114765	A	19830824	GB 1983-2089	19830126
GB 2114765	B	19860521		
DE 3303814	A1	19840809	DE 1983-3303814	19830204
US 4483758	A	19841120	US 1984-574808	19840130
PRIORITY APPLN. INFO.:			US 1982-342333	A 19820125

OTHER SOURCE(S): MARPAT 99:185026

AB Neg.-acting radiation-sensitive materials for lithog. plate preparation contain a diazo resin and a O-epoxyalkyl tetrakis(hydroxyphenyl)alkane resin or its esterification reaction product with an ethylenically unsatd. organic acid. Thus, an anodized Al support treated with an aqueous Na silicate solution was coated with a composition containing the reaction product of 2-ethoxy-4-methoxybenzophenone-5-sulfonic acid with the condensation product of formaldehyde and p-diazodiphenylamine 1, polyester DV 521 (Polychrome) 0.5, Orasol Blue GN 0.1, Me orange 0.02, ethylene dichloride 55, MeOH 22, Me cellosolve 18, DMF 2.88, and the esterification reaction product of glacial acrylic acid and pelargonic acid with Epon 1031 (1,1,2,2-tetrakis[(2,3-epoxypropyl)phenyl]ethane) 0.5 parts by weight exposed, and developed to give a lithog. plate that had press lifetime of .apprx.6 mo. and produced 110,000 good copies.

IT 30621-65-9

RL: USES (Uses)

(**photosensitive** composition containing, for lithog. plate preparation)

RN 30621-65-9 HCAPLUS

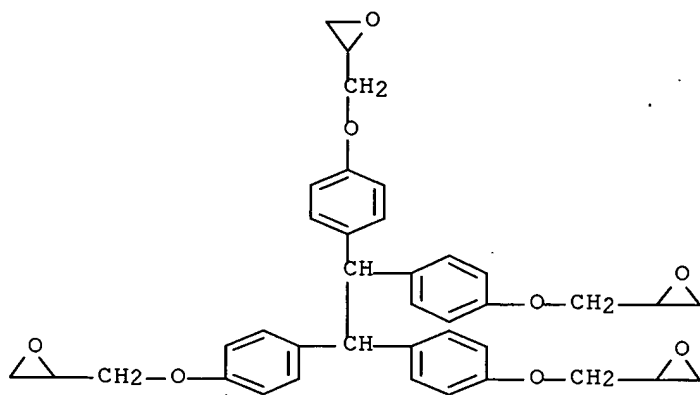
CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8





L23 ANSWER 17 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1983:585018 HCAPLUS Full-text  
 DOCUMENT NUMBER: 99:185018  
 ORIGINAL REFERENCE NO.: 99:28269a,28272a  
 TITLE: Diazo **photosensitive** lithographic plate  
 PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 57138641	A	19820827	JP 1981-24476	19810221
PRIORITY APPLN. INFO.:			JP 1981-24476	19810221

AB In the preparation of a durable **photosensitive** lithog. plate which provides good images (improved dot image reproduction), a Cr-plated Fe or steel plate support is coated with a layer of a **photosensitive** composition containing at least a **photosensitive** diazo compound. The above plate support has numerous crack holes for diffusion and crystalline Cr on the surface and is rust proof. Thus, a 0.15 mm thick Fe plate was cleaned, pretreated, electroplated for 7 min at 0°, 8V d.c., and 5 A/dm<sup>2</sup> by using the above Fe plate as a cathode and a Pb plate as an anode in an aqueous solution containing CrO<sub>3</sub>, Ba(NO<sub>3</sub>)<sub>2</sub>, HNO<sub>3</sub> (64%), NH<sub>4</sub>HF<sub>2</sub>, AcOH, and BaF<sub>2</sub>, washed, and posttreated to give a Cr-plated Fe plate support. The above support was then coated with a **photosensitive** composition containing p- hydroxyphenylmethacrylamide-acrylonitrile-Et acrylate-methacrylic acid (20:35:35:10 weight ratio) copolymer (mol. weight 80,000) 5, p-diazodiphenylamine-paraformaldehyde (1:0.6 mol ratio) polymer hexafluorophosphate salt 0.5, Jurimer AC 10L 0.05, Victoria Pure Blue BOH 0.1 g and Me cellosolve 100 mL, imagewise exposed, and developed to give a lithog. plate which provided 200,000 good printed copies with a dot gain (50% dots) of +3% vs. 100,000 copies with a dot gain of +15% for a control using an Al plate support.

IT 30621-65-9

RL: USES (Uses)

(diazo **photosensitive** composition containing, for lithog. plate using chromium-plated iron support)

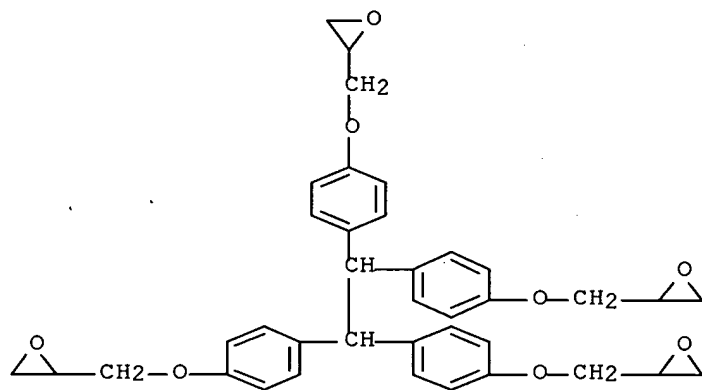
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L23 ANSWER 18 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1983:480101 HCAPLUS Full-text  
 DOCUMENT NUMBER: 99:80101  
 ORIGINAL REFERENCE NO.: 99:12233a,12236a  
 TITLE: Image forming materials  
 PATENT ASSIGNEE(S): Konishiroku Photo Industry Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 58076833	A	19830510	JP 1981-174420	19811102
PRIORITY APPLN. INFO.:			JP 1981-174420	19811102

AB A support is coated with a subbing layer which is soluble in (or shows an affinity to) aqueous processing solns., and coated with a vacuum-deposited metallic or metal-like layer to give an image forming material. A **photosensitive** resin layer may be formed on the metal layer. The image recording material can be developed with aqueous solns. Thus, a poly(ethylene terephthalate) substrate was coated with a 0.5- $\mu$ m subbing layer of styrene-sodium maleate copolymer, then with a vacuum-deposited Al layer (optical d. = 2.5), and with a 2- $\mu$ m thick photopolymer layer containing poly(vinyl alc.), Jurimer AT-515L, and a diazo resin (# 4, Fairmount, Ltd.) to give an photoimaging material, then the material was imagewise exposed for 30 s to a 2-kW metal halide lamp, and developed in water to give an Al neg. image with high d.

IT 30621-65-9  
 RL: USES (Uses)

(photoimaging material containing polymeric subbing layer and metallic layer and photopolymeric layer containing)

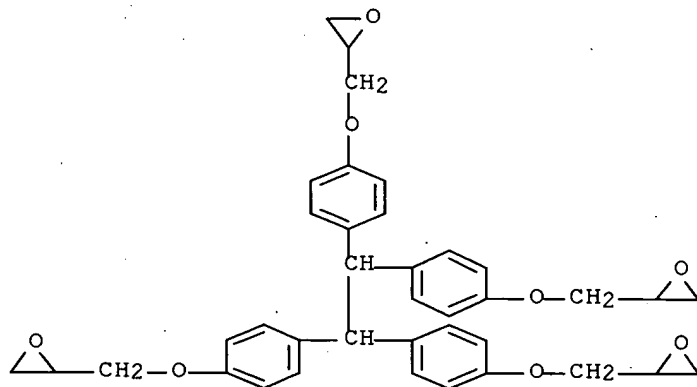
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L23 ANSWER 19 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1982:447194 HCAPLUS Full-text

DOCUMENT NUMBER: 97:47194

ORIGINAL REFERENCE NO.: 97:7842h,7843a

TITLE: Single-stage developer and lacquer mixture for diazo printing forms

INVENTOR(S): Von Gruenberg, Gregory; Golda, Eugene; Rowe, William

PATENT ASSIGNEE(S): Polychrome Corp., USA

SOURCE: Ger. Offen., 20 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3032151	A1	19820408	DE 1980-3032151	19800826
PRIORITY APPLN. INFO.:			DE 1980-3032151	19800826

AB For a developer which removes the unexposed areas of a diazo sensitized offset plate without attacking the halftone dots and simultaneously leaves a protective lacquer on the image areas in .apprx.1 min, a homogeneous mixture of an aqueous and a resinous phase in a preferred 1-6:1 ratio is used. The aqueous phase is a 10-20% solution of a Li salt of an organic C7-18 OH compound or acid, the other a 5-20% solution of an ink-receptive film-forming resin (epoxy, phenolic, polyurethane, or polyester) in a water-miscible solvent. The pH of the developer may be for neg.-working plates 5-10, for pos. plates  $\geq 12$ . It may also contain surfactants and  $<5\%$   $H_3PO_4$  or  $(CO_2H)_2$  for

cleaning the Al surface. Thus, 2 solns. were prepared, A containing Li benzoate 25 and 2-capryl-1-(Et  $\beta$ -hydroxyprpionic acid)imidazoline (sic) 100 in water 100 parts, while B consisted of MeC<sub>5</sub>H<sub>11</sub>CO 60, Epon 1004 (epoxy resin) 7, Duponal Ep surfactant) 0.5 and naphthol red 16 parts. Of 2 Al plates sensitized with the addition product of 2-hydroxy-4- methoxybenzophenone-5-sulfonic acid and a p-diazodiphenylamine- paraformaldehyde condensate in a resinous binder, exposed, developed, and mounted in an offset press, the one developed with A yielded 40,000 copies, while the one with the mixture of A + B yielded 120,000 copies.

IT 30621-65-9

RL: USES (Uses)

(**photosensitive** printing plates containing diazo compound and, developer-lacquer compns. for)

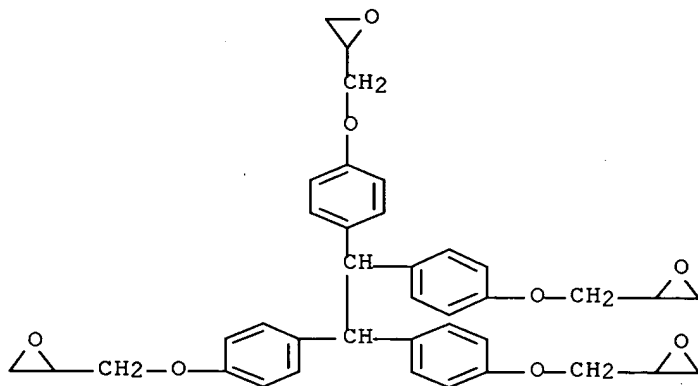
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L23 ANSWER 20 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1981:55929 HCAPLUS Full-text

DOCUMENT NUMBER: 94:55929

ORIGINAL REFERENCE NO.: 94:8997a,9000a

TITLE: Visual aids such as montage films for lithographic printing

INVENTOR(S): Pigeon, Marcel; Szretter, Marta; Perie, Chantal

PATENT ASSIGNEE(S): Rhone-Poulenc Systemes, Fr.

SOURCE: Eur. Pat. Appl., 23 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 17563	A1	19801015	EP 1980-400404	19800326
EP 17563	B1	19840215		
R: AT, BE, CH, DE, GB, IT, LU, NL, SE				
FR 2452729	A1	19801024	FR 1979-7747	19790328
FR 2452729	B1	19821001		
US 4299893	A	19811110	US 1980-134326	19800326
AT 6313	T	19840315	AT 1980-400404	19800326
JP 55159434	A	19801211	JP 1980-39631	19800327
ES 490060	A1	19801216	ES 1980-490060	19800328

## PRIORITY APPLN. INFO.:

FR 1979-7747	A	19790328
EP 1980-400404	A	19800326

AB For such uses as montage films, color proofs, or microfiche films photopolymerizable mixts. of a diazo resin 45-60% with an epoxy resin 40-55% are used as 1-1.5 g/m<sup>2</sup> coating on a flexible polyester film, which is UV-exposed imagewise, hardened in the exposed areas, and developed by running water to remove the unexposed coating. The film carries <0.5 g/m<sup>2</sup> of a substratum which is not stained by the dyes. The **photosensitive** component is preferably an HCHO condensate of p-diazodiphenylamine or a derivative of it, precipitated as paste after the condensation using 2,5-dimethylbenzenesulfonic acid as coupling agent, and redissolved in a solvent. The epoxy resin may be a glycidyl ether of Bisphenol A and/or phenol or cresol epoxy novolak resins, including Ciba Araldite and Shell Epikote or Epon products. The epoxy resin m. ≤20-38° (Curran method) and has a viscosity >5000 cP (25°), which is raised by the addition of the diazo resin, rendering the product nonsticky. The addition of dyes should remain at <20%, that of UV absorbers <5%. Thus, a solution of Ciba epoxy novolak resin 1139 2.5 g and of Victoria Blue 0.25 in HOC2H4OMe 55.25 g was mixed with a 6% solution of the p-toluenesulfonate of p-diazodiphenylamine-HCHO condensate in the same solvent. The mixture was spin-coated at 50 rpm in 30 s on a gelatin-subbed polyester film, dried 5 min at 40°, then 5 min at 85°, and exposed through a neg.transparency using a 2-kW/Nuarc lamp at 60 cm for 3 min. Water jet development was supplemented by light wiping with a wad. The pos. blue image could serve as montage film.

IT 30621-65-9

RL: USES (Uses)

(polyester support treatment by solution containing, for  
**photosensitive** assembly preparation for montage film production)

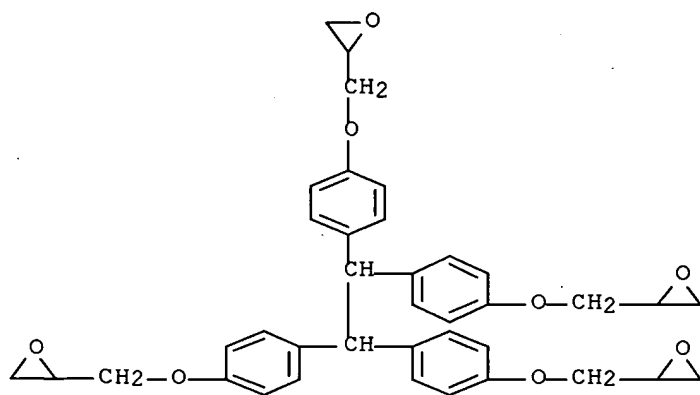
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L23 ANSWER 21 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1980:416994 HCAPLUS Full-text  
 DOCUMENT NUMBER: 93:16994  
 ORIGINAL REFERENCE NO.: 93:2787a,2790a  
 TITLE: Energy-sensitive multilayer film for producing images  
 INVENTOR(S): Shimazu, Kenichi; Nakayama, Takao  
 PATENT ASSIGNEE(S): Polychrome Corp., USA  
 SOURCE: Ger. Offen., 36 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2919137	A1	19791115	DE 1979-2919137	19790511
US 4347300	A	19820831	US 1978-904840	19780511
PRIORITY APPLN. INFO.:			US 1978-904840	A 19780511
			US 1977-802851	A2 19770602

AB Energy-sensitive multilayer films for the production of both neg. and pos. images at the same time and at low cost are composed of an upper support layer, a **photosensitive** gas-forming diazo compound-containing layer, an image-forming layer, an adhesive layer, and a lower support layer. The image-forming layer and/or the adhesive layer contain a **photosensitive**, photohardenable, or photocrosslinkable substance. Also, the image-forming and adhesive layer may be combined with one another. Thus, a 25  $\mu$ m transparent, polyester film was coated with a composition contg. Epon 5, p-diazodimethylaniline - 1/2 ZnCl<sub>2</sub> 15 g, ethylene dichloride 80, MeOH 25, Me-cellosolve 25, and DMF 25 mL to give the **photosensitive** layer. This layer was then overcoated with a composition containing Versamid 754 20, carbon black 5, Fe-naphthenate 5 g, PhMe 40, and 2-PrOH 40 mL (image-forming layer). A 2nd film 76  $\mu$ m (Mylar) was coated with a composition containing DV 530 (photopolymerizable oligomer) 5, Siligrip SR-573 (silicone resin) 5, Michler's ketone 0.25, and benzophenone 0.25 g. The 2 films were laminated together, imagewise exposed, and delaminated to give a neg. image on the 76  $\mu$ m film and a pos. image on the 25  $\mu$ m polyester film.

IT 30621-65-9

RL: USES (Uses)

(photoimaging compns. containing, multilayer, for production of pos. and

neg.

images)

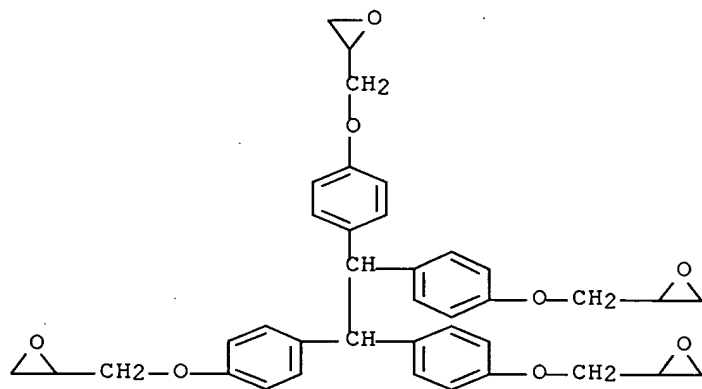
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L23 ANSWER 22 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1980:207146 HCAPLUS Full-text

DOCUMENT NUMBER: 92:207146

ORIGINAL REFERENCE NO.: 92:33432h,33433a

TITLE: Energy-sensitive multilayer film for producing images

INVENTOR(S): Shimazu, Kenichi; Nakayama, Takao

PATENT ASSIGNEE(S): Polychrome Corp., USA

SOURCE: Ger. Offen., 36 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2919138	A1	19791115	DE 1979-2919138	19790511
GB 2021276	A	19791128	GB 1979-16386	19790511
JP 55011280	A	19800126	JP 1979-57940	19790511
PRIORITY APPLN. INFO.:			US 1978-904839	A 19780511

AB Energy-sensitive multilayer films for the reproduction of both neg. and pos. images at the same time are described. The films consist of an upper support, an energy-sensitive layer, an imaging layer, an adhesive layer, and a lower support. The imaging layer and the adhesive layer may be combined. Thus, a 76 $\mu$  transparent polyester film was coated with a composition containing Epon 5, p-diazodimethylaniline-1/2 ZnCl<sub>2</sub> 15g, ethylene dichloride 80, MeOH 25, Me cellosolve 25, DMF 25 mL to give a **photosensitive** layer. Upon this layer was then coated a composition containing Versamid 754 20, carbon black 5, Fe

naphthenate 5, PhMe 40, and iso-PrOH 40 mL to give an imaging layer. Upon a 2nd 12.7  $\mu$ m transparent polyester film (Mylar) was coated a composition containing Covinax 5, Cyna (surfactant) 0.5, and H<sub>2</sub>O 0.5 g to give an adhesive layer. These films were then laminated together to give a multilayer film which was then imagewise exposed and subsequently delaminated to give a neg. image on the 12.7  $\mu$ m polyester film and a pos. image on the 76  $\mu$ m polyester film. When used in an overhead projector, the pos. gave a clear image.

IT 30621-65-9

RL: USES (Uses)

(photoimaging compns. containing, multilayer, for pos. and neg. image reproduction)

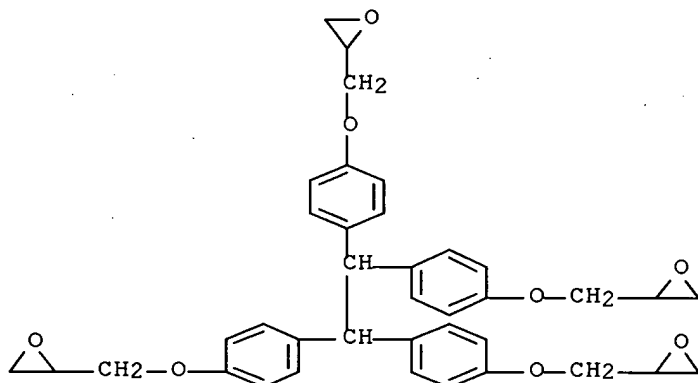
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L23 ANSWER 23 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1980:207124 HCAPLUS Full-text

DOCUMENT NUMBER: 92:207124

ORIGINAL REFERENCE NO.: 92:33425a,33428a

TITLE: **Photosensitive** multilayer film and printing plates

INVENTOR(S): Shimazu, Kenichi; Nakayama, Takao

PATENT ASSIGNEE(S): Polychrome Corp., USA

SOURCE: Ger. Offen., 33 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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DE 2919136	A1	19791115	DE 1979-2919136	19790511
GB 2020836	A	19791121	GB 1979-16283	19790510
JP 55011282	A	19800126	JP 1979-57942	19790511



PRIORITY APPLN. INFO.:

US 1978-904841

A 19780511

AB A multilayer film for production of a pos. as well as a neg. of a transparent image consists of the following layers: (1) a flexible transparent gas-impermeable upper support layer; (2) a 1st **photosensitive** layer thereon containing a diazonium compound (and optionally a small amount of resin) which decomps. and evolves gas upon UV irradiation; (3) a resin-containing image-forming layer thereon which is strippable according to the image formation by a shearing force; (4) a 2nd **photosensitive** layer thereon containing a H<sub>2</sub>O-soluble diazonium polymer which does not evolve gas and which becomes insol. upon UV-irradiation; (5) and a hydrophilic lower support film. UV exposure of the multilayer film through a transparent original on the upper side causes a spontaneous evolution of gas in the 1st **photosensitive** layer so that in the exposed regions an outward-directed force is exerted on the upper support and the image-forming layer and image-forming bubbles are visible through the upper support. Light reaching the 2nd **photosensitive** layer causes the diazonium polymer to become insol. in the exposed regions and subsequent separation of the upper and lower parts by peeling causes a cleavage of the image-forming layer from the 2nd **photosensitive** layer. Thereby a neg. of the transparent original in the form of a lithog. plate is produced from the lower support on which the exposed 2nd **photosensitive** layer adheres, and simultaneously a pos. of the original is formed from the upper support on which the unexposed 1st **photosensitive** layer adheres. Thus, a **photosensitive** substance composed of Epon 5, p- (dimethylamino)benzenediazonium chloride 0.5ZnCl<sub>2</sub> 15 g, ethylene chloride 80, MeOH 25, methyl cellosolve 25, and DMF 25 mL was coated on a transparent polyester film to a thickness of 76  $\mu$ m, and on this was coated an image-forming layer composed of Versamide 754 20, carbon black 5 g, PhMe 40, iso-PrOH 40 mL, and Fe naphthenate 5 g. On an Al film was coated a H<sub>2</sub>O-soluble **photosensitive** layer containing the condensation product of a p-phenylaminobenzenediazonium salt with paraformaldehyde and on the **photosensitive** layer was spread 10 g of a silicone adhesive (Siligrip SR 573) dissolved in 10 g PhMe. These 2 coated films were then laminated together so that the image forming layer and the adhesive layer were in contact. The polyester side of the laminate was exposed to actinic light from a C arc lamp through a transparent original for 30 s, and 2 component films were separated to give a neg. on the Al film and a pos. on the polyester film. The neg.-containing Al film was used on a printing press to give excellent reproductions.

IT 30621-65-9

RL: USES (Uses)

(**photosensitive** multilayer film containing, for lithog. plate manufacture)

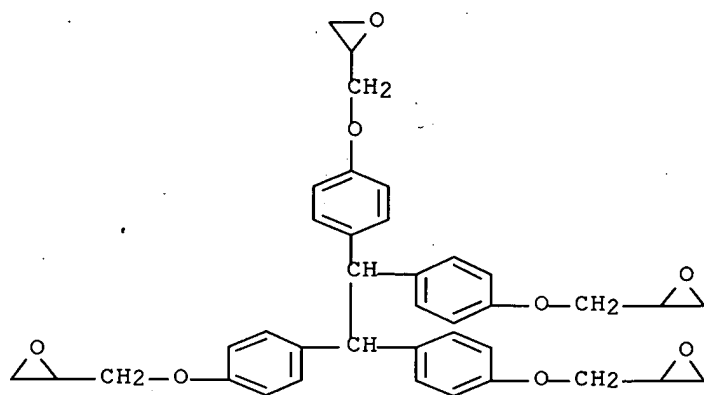
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L23 ANSWER 24 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1979:466241 HCAPLUS Full-text

DOCUMENT NUMBER: 91:66241

ORIGINAL REFERENCE NO.: 91:10595a,10598a

TITLE: New photodelamination imaging system and its response to xenon flash lamp

AUTHOR(S): Nakayama, Takao; Shimazu, Kenichi; Inoue, Eiichi

CORPORATE SOURCE: Polychrome Corp., Yonkers, NY, 10702, USA

SOURCE: Nippon Shashin Gakkaishi (1979), 42(1), 25-35

CODEN: NSGKAP; ISSN: 0369-5662

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB A new photodelamination imaging system for use with Xe flash lamps is described. The imaging system is comprised of either a diazo **photosensitive** layer or its combination with an imaging layer sandwiched between 2 supports. For optimum results the binder for the **photosensitive** and imaging layers should have low a N permeation constant and sharp softening temperature range, maximizing the effect of flash exposure which causes photodissoen. of the diazo sensitizers and a sharp rise in temperature in the exposed areas. The responses of the imaging system to Xe flash lamps and its photog. and storage characteristics were also investigated.

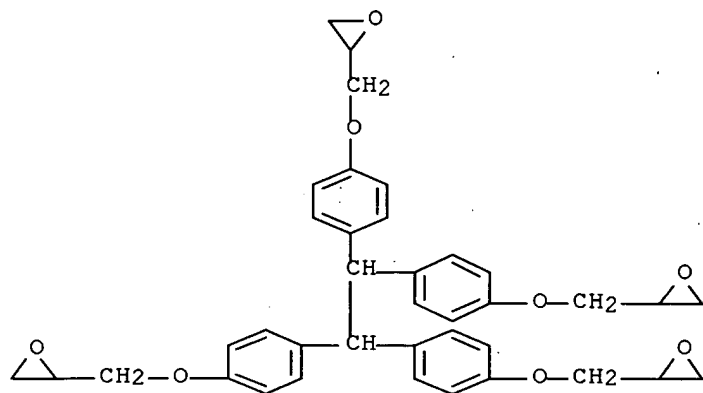
IT 7328-97-4

RL: USES (Uses)

(**photosensitive** compns. containing diazo compound and, for photodelamination photoimaging materials)

RN 7328-97-4 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis- (CA INDEX NAME)



L23 ANSWER 25 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1979:64488 HCAPLUS Full-text

DOCUMENT NUMBER: 90:64488

ORIGINAL REFERENCE NO.: 90:10127a,10130a

TITLE: Water developable lithographic printing plate having dual **photosensitive** layering

INVENTOR(S): Golda, Eugene; Wilkes, Alan Leonard; Chu, Simon Long

PATENT ASSIGNEE(S): Polychrome Corp., USA

SOURCE: U.S., 6 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4104072	A	19780801	US 1977-798531	19770519
NO 7704517	A	19781121	NO 1977-4517	19771230
NL 7801625	A	19781121	NL 1978-1625	19780213
DK 7800742	A	19781120	DK 1978-742	19780220
JP 53145706	A	19781219	JP 1978-43764	19780413
JP 61051311	B	19861108		
CA 1103089	A1	19810616	CA 1978-302465	19780502
AU 7835967	A	19791115	AU 1978-35967	19780510
AU 519958	B2	19820107		
GB 1604170	A	19811202	GB 1978-19119	19780512
SE 7805737	A	19781120	SE 1978-5737	19780518
DE 2821777	A1	19781130	DE 1978-2821777	19780518
FR 2391489	A1	19781215	FR 1978-14931	19780519
FR 2391489	B1	19850628		

PRIORITY APPLN. INFO.:

US 1977-798531 A 19770519

AB Lithog. printing plates, which can be developed by using ordinary tap water, are composed of a metal support having coated thereon a layer of a water-soluble, **photosensitive** substance and a layer of a water-insol., ink-receptive, **photosensitive** substance. Both layers must be either both pos. working or both neg. working. Upon image exposure through a mask, the exposed areas of the upper **photosensitive** composition are rendered either water permeable or water impermeable and the unexposed areas are either water impermeable or water permeable as opposed to the exposed areas. Thus, a

grained 3003 Al plate was dip-coated with a water-soluble, neg.-working composition containing a paraformaldehyde-p-diazodiphenylamine ZnCl<sub>2</sub> salt reaction product from a 2% solution to give a dry coating weight of 40 mg/ft<sup>2</sup>. The plate was then coated with a composition containing a water-insol. diazo resin 1, Epon 1031 2, and a basic blue dye 0.1 part in Me cellosolve to give a dry coating weight of 70 mg/ft<sup>2</sup>. After a 2 min exposure, the plate was developed with ordinary tap water.

IT 30621-65-9

RL: USES (Uses)

(**photosensitive** compns. containing, for water-developable lithog. plate fabrication)

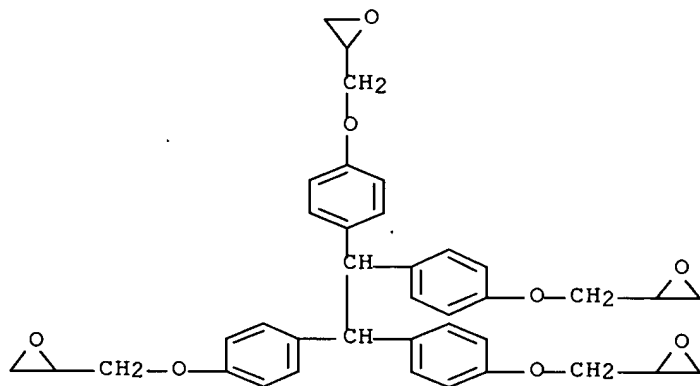
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L23 ANSWER 26 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1977:91022 HCAPLUS Full-text

DOCUMENT NUMBER: 86:91022

ORIGINAL REFERENCE NO.: 86:14397a,14400a

TITLE: Hydrophilic mixed polymers

INVENTOR(S): Sato, Bunya

PATENT ASSIGNEE(S): Kyowa Gas Chemical Industry Co., Ltd., Japan

SOURCE: Ger. Offen., 25 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2626706	A1	19761230	DE 1976-2626706	19760615
JP 51148788	A	19761221	JP 1975-72716	19750617
JP 59049243	B	19841201		

CA 1091390	A1	19801209	CA 1976-254537	19760610
DK 7602686	A	19761218	DK 1976-2686	19760616
SE 7606855	A	19761218	SE 1976-6855	19760616
GB 1546822	A	19790419	GB 1976-25000	19760616
NL 7606561	A	19761221	NL 1976-6561	19760617
FR 2316263	A1	19770128	FR 1976-18473	19760617
FR 2316263	B1	19800905		

## PRIORITY APPLN. INFO.:

JP 1975-72716

A 19750617

AB Acrylic polymers are combined with polyisocyanates, polyurethanes, or epoxy resins to provide hydrophilic coatings or materials for transfer or offset printing. Thus, to a solution of 100 g 40:50:10 dimethylaminoethyl methacrylate-lauryl methacrylate-methacrylic acid copolymer [61842-08-8] in 400 g BuOAc was added 14 g Coronate L [39278-79-0] (polyisocyanate) and the mixture used as a ship coating which resisted marine growths.

IT **30621-65-9**

RL: USES (Uses)

(coating comps., containing acrylic polymers, hydrophilic)

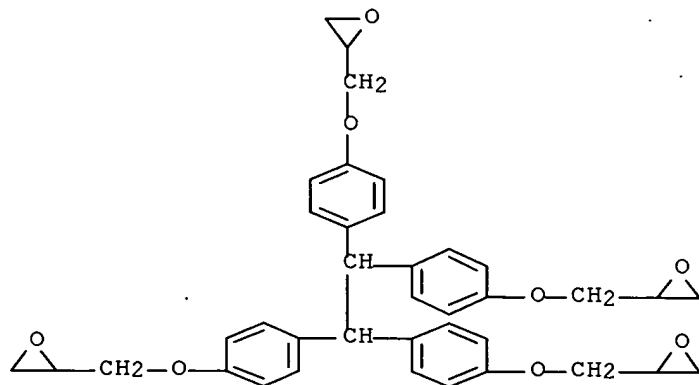
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L23 ANSWER 27 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1975:37332 HCAPLUS Full-text

DOCUMENT NUMBER: 82:37332

ORIGINAL REFERENCE NO.: 82:5877a,5880a

TITLE: Polymerizable compositions

INVENTOR(S): Green, George Edward

PATENT ASSIGNEE(S): Ciba-Geigy A.-G.

SOURCE: Ger. Offen., 25 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2410238	A1	19740912	DE 1974-2410238	19740304
GB 1443822	A	19760728	GB 1973-10796	19730306
CA 1012682	A1	19770621	CA 1974-190797	19740123
US 3936366	A	19760203	US 1974-446990	19740228
CH 599258	A5	19780531	CH 1974-2935	19740301
NL 7402905	A	19740910	NL 1974-2905	19740304
FR 2220563	A1	19741004	FR 1974-7386	19740305
JP 49119983	A	19741115	JP 1974-26128	19740306
JP 58030326	B	19830628		

## PRIORITY APPLN. INFO.:

GB 1973-10796

A 19730306

AB Photopolymerizable compns. containing a compound with  $\geq 3,3$ -sorbylox-y-2-hydroxypropyloxy groups/mol. and a **photosensitizer**, such as Michler's ketone, for use in preparing offset printing plates are described. Thus, a solution containing Epoxy Novolak I 85, sorbic acid 56, Et3N 1.4, hydroquinone 0.14, and PhMe 400 g was refluxed for 5 hr and PhMe 562 and Me2CO 321 g were added to give a 10% solution of the polysorbate. To this solution was then added Michler's ketone 6.75 g, and the solution was then coated on a Cu-coated laminate to give a dry thickness of 10  $\mu\text{m}$ , exposed through a negative for 30 sec at 234 nm, and developed with a Me2CO-PhMe (1:3) mixture to give a good relief image.

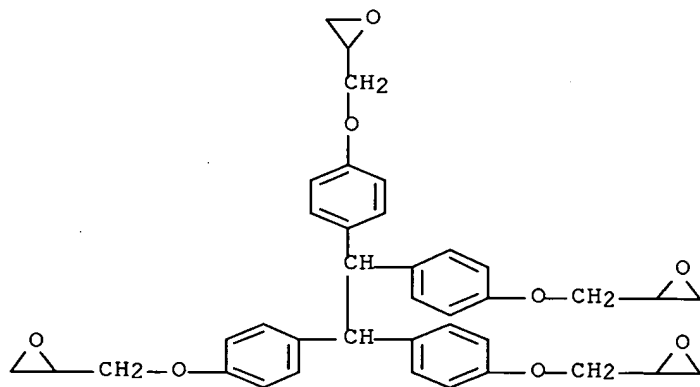
IT 7328-97-4

RL: USES (Uses)

(sorbic acid-modified, photopolymerizable compns. containing **photosensitizers** and, for printing plates)

RN 7328-97-4 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis- (CA INDEX NAME)



L23 ANSWER 28 OF 28 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1974:544281 HCAPLUS Full-text

DOCUMENT NUMBER: 81:144281

ORIGINAL REFERENCE NO.: 81:22517a,22520a

TITLE: Presensitized lithographic plates with silicone rubber top coating

INVENTOR(S): Kondo, Asaji; Kishimoto, Shinzo; Yazawa, Kenichiro; Miyano, Shizuo

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd.  
 SOURCE: Ger. Offen., 36 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2350211	A1	19740418	DE 1973-2350211	19731005
JP 49057903	A	19740605	JP 1972-100082	19721005
JP 56012860	B	19810325		
GB 1442374	A	19760714	GB 1973-46490	19731004
			JP 1972-100082	A 19721005

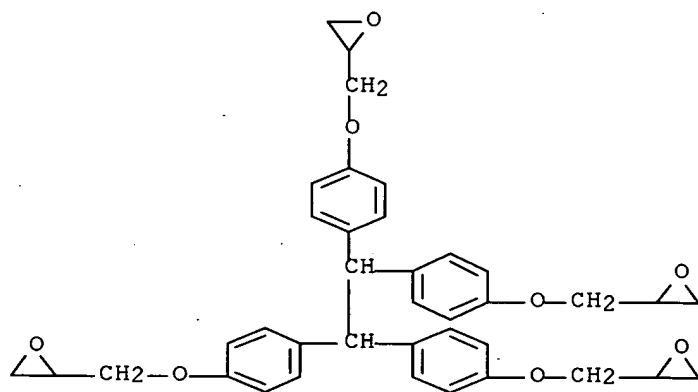
PRIORITY APPLN. INFO.:  
 AB Pos. or neg. working plates, which require no aqueous fountain solution during their use, carry on their diazo-sensitized image-forming coating a 2-5  $\mu$  top layer of silicone rubber. This layer can be rendered fingerprint-resistant in 30-60 sec at 100-120° if it is composed of 2-types of rubber in the ratio 1:0.5-10. The 1st type is derived from siloxanes with terminal alcohol, Ac, or oxime groups, while the 2nd, with terminal vinyl groups, is addition polymerizable with a Pt or Pd catalyst. Thus, a silicone primer was applied to an Al plate with 30 mg/0.09 m<sup>2</sup> of a 2:1 mixture of a condensate of o-quinone diazide sulfonyl chloride and pyrogallol with Epon 1031 resin as binder. For the 3  $\mu$  top coating the metal catalyst was added to the C7H16 solution of a com. product of the 1st type of rubber, then the 2nd type added, and the coating dried for 1 min at 100°. The plate, exposed through a screened negative and developed in a BuOA-PrOH-H<sub>2</sub>O (2:7:1) mixture, yielded 10,000 copies.

IT **30621-65-9**  
 RL: USES (Uses)  
 (binder, for pos. or neg. working presensitized lithog. plates)

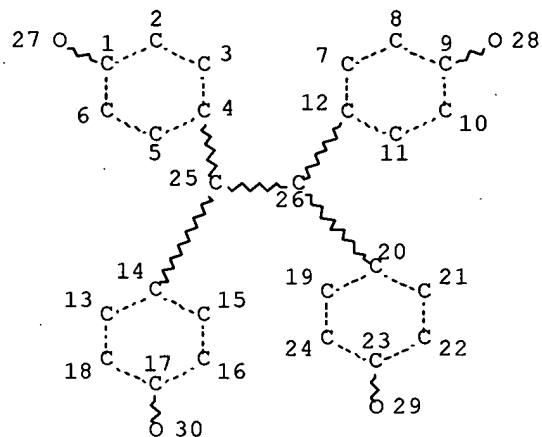
RN 30621-65-9 HCAPLUS  
 CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4  
 CMF C38 H38 O8



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L1 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

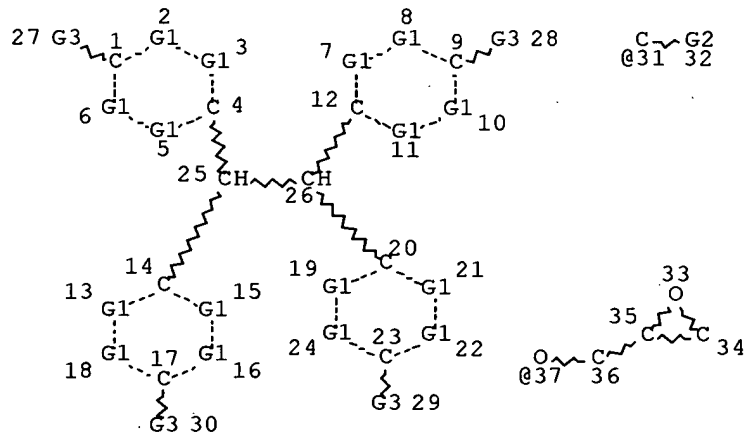
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 30

STEREO ATTRIBUTES: NONE

L3 691 SEA FILE=REGISTRY SSS FUL L1

L6 STR



VAR G1=CH/31

VAR G2=ME/ET/I-PR/N-PR/I-BU/N-BU/T-BU/S-BU/X

VAR G3=OH/37

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED



GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 37

STEREO ATTRIBUTES: NONE

L7 SCR 2127  
L8 26 SEA FILE=REGISTRY SUB=L3 SSS FUL L6 NOT L7  
L9 360 SEA FILE=HCAPLUS ABB=ON PLU=ON L8  
L10 809777 SEA FILE=HCAPLUS ABB=ON PLU=ON (RESINS/CV OR RESIN/CV OR  
RESINIFICATION/CV OR RESINOLS/CV OR GUM/CV OR "GUM RESINS"/CV OR  
OR GUMS/CV OR "GUMS (RESINOUS)"/CV OR "NATURAL RESINS"/CV OR  
"RESINOUS GUMS"/CV) OR RESIN  
L12 122999 SEA FILE=HCAPLUS ABB=ON PLU=ON LIGHT-SENSITIVE MATERIALS/CV  
OR PHOTSENS? OR LIGHT(2A) SENSIT?  
L13 98 SEA FILE=HCAPLUS ABB=ON PLU=ON L9(L) L10  
L14 13 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 AND L13  
L22 41 SEA FILE=HCAPLUS ABB=ON PLU=ON L9 AND L12  
L23 28 SEA FILE=HCAPLUS ABB=ON PLU=ON L22 NOT L14  
L24 679 SEA FILE=HCAPLUS ABB=ON PLU=ON ("TANAKA RYUTARO"/AU OR  
"TANAKA RYUTAROU"/AU) OR TANAKA R/AU OR TANAKA R ?/AU  
L25 253 SEA FILE=HCAPLUS ABB=ON PLU=ON "NAKANISHI MASATAKA"/AU OR  
NAKANISHI M/AU OR NAKANISHI M ?/AU  
L26 295 SEA FILE=HCAPLUS ABB=ON PLU=ON "AKATSUKA Y"/AU OR "AKATSUKA  
YASUMASA"/AU  
L27 56 SEA FILE=HCAPLUS ABB=ON PLU=ON "KOYANAGI H"/AU OR "KOYANAGI  
HIRO"/AU OR "KOYANAGI HIROO"/AU  
L28 20 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 AND (L25 OR L26 OR L27)  
L29 29 SEA FILE=HCAPLUS ABB=ON PLU=ON L25 AND (L26 OR L27)  
L30 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L26 AND L27  
L31 10 SEA FILE=HCAPLUS ABB=ON PLU=ON (L24 OR L25 OR L26 OR L27)  
AND L9  
L32 665 SEA FILE=REGISTRY ABB=ON PLU=ON L3 NOT L8  
L33 403 SEA FILE=HCAPLUS ABB=ON PLU=ON L32  
L34 8 SEA FILE=HCAPLUS ABB=ON PLU=ON (L24 OR L25 OR L26 OR L27)  
AND L33  
L35 45 SEA FILE=HCAPLUS ABB=ON PLU=ON (L28 OR L29 OR L30 OR L31 OR  
L34) NOT (L14 OR L23)

=> d ibib abs hitstr l35 1-45

L35 ANSWER 1 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2007:1442764 HCAPLUS Full-text  
DOCUMENT NUMBER: 148:66148  
TITLE: Photosensitive polymer compositions with high  
sensitivity and good thermal stability  
INVENTOR(S): Oshimi, Katsuhiko; **Tanaka, Ryutaro**; **Nakanishi,**  
**Masataka**; Kurihashi, Toru  
PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 23pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2007328028	A	20071220	JP 2006-157443	20060606
PRIORITY APPLN. INFO.:			JP 2006-157443	20060606
<p>AB The compns., especially useful for printed circuit boards, contain (A) aqueous alkali solution-soluble polymers, (B) crosslinkers, (C) photopolymer initiators, and (D) crystalline epoxy resins of C<sub>6</sub>H<sub>4</sub>-m(OGly)R<sub>m</sub>[CH<sub>2</sub>-p-C<sub>6</sub>H<sub>4</sub>-p-C<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>-m(OGly)R<sub>m</sub>]<sub>n</sub>H (n = 1.0-2.0; R = H, C<sub>1</sub>-4 alkyl, Ph; k = 1-4; Gly = glycidyl) as curing agents. The crystalline epoxy resins may show softening point or m.p. 75-180°. The aqueous alkali solution-soluble polymers may be prepared by reacting compds. having ≥2 epoxy groups with monocarboxylic acids having ethylenic unsatn., then with polybasic acid anhydrides.</p>				

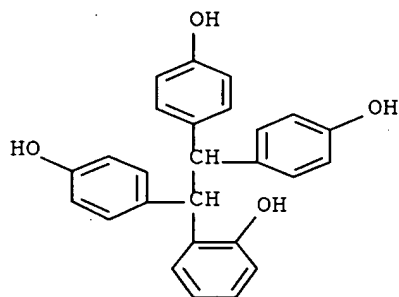
L35 ANSWER 2 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2007:1240281 HCAPLUS Full-text  
DOCUMENT NUMBER: 147:494041  
TITLE: Tetrakisphenoethane-based epoxy resins with high  
softening point, their compositions, their  
crystal-dispersed materials, their photoresists, and  
printed circuit boards with them  
INVENTOR(S): **Nakanishi, Masataka**; Oshimi, Katsuhiko; Sunaga, Takao  
PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan; Nippon Kayaku Fukuyama  
Co., Ltd.  
SOURCE: Jpn. Kokai Tokkyo Koho, 35pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007284582	A	20071101	JP 2006-114278	20060418
PRIORITY APPLN. INFO.:			JP 2006-114278	20060418
AB	<p>Title epoxy resins with softening point 80-120° comprise (1a) (Q12CH)2, (1b) 0.3-1.5 molar ratio CH2CH(OH)CH2, and (1c) Q12CHCHQ22 at 1a/(1a + 1c) molar ratio 0.9-1.0 [Q1 = Rn-substituted 4-O-C6H4; Q2 = Rn-substituted 2-O-C6H4; R = Cl,3,4 alkyl, Ph; n = 0-3; phenolic O of (1a) and (1c) bond via (1b) each other or bond to glycidyl group]. The compns. contain the epoxy resins and crosslinking agents. The crystal-dispersed materials are manufactured by sequentially or all together mixing of the epoxy resins with solvents and/or ethylenically unsatd. group-containing compds. The photoresists contains the crystal-dispersed materials containing ethylenically unsatd. group-containing compds. and photopolymn. initiators. The printed circuit boards have layers manufactured from their photoresists. The crystalline epoxy resins manufactured by without crystallization show high storage stability and good heat resistance and dispersibility.</p>			
IT	<p><b>953809-23-9P</b>            RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent);            USES (Uses)            (novolak-crosslinked; storage-stable crystalline tetrakisphenolethane-based epoxy resin moldings and photoresists for printed circuit boards)</p>			
RN	953809-23-9 HCAPLUS			
CN	<p>Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis-, polymer with 2-(chloromethyl)oxirane and 2-[1,2,2-tris(4-hydroxyphenyl)ethyl]phenol (CA INDEX NAME)</p>			

CM 1

CRN 868170-18-7

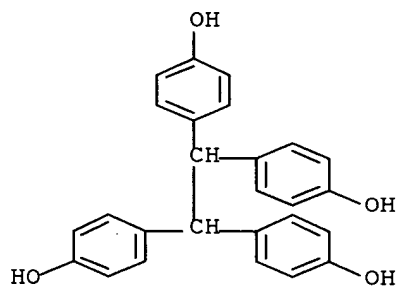
CMF C26 H22 O4



CM 2

CRN 7727-33-5

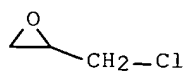
CMF C26 H22 O4



CM 3

CRN 106-89-8

CMF C3 H5 Cl O



IT **31425-02-2P**, Epichlorohydrin-TEP-DF copolymer  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (storage-stable crystalline tetrakisphenolethane-based epoxy resin moldings and photoresists for printed circuit boards)

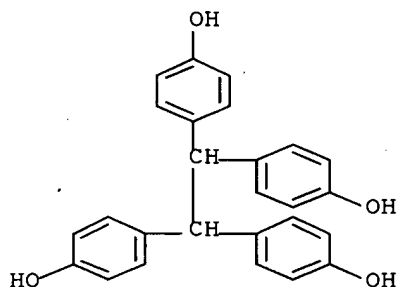
RN 31425-02-2 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis-, polymer with  
2-(chloromethyl)oxirane (CA INDEX NAME)

CM 1

CRN 7727-33-5

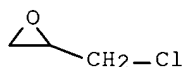
CMF C26 H22 O4



CM 2

CRN 106-89-8

CMF C3 H5 Cl O



L35 ANSWER 3 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:1110629 , HCAPLUS Full-text

DOCUMENT NUMBER: 147:428075

TITLE: Epoxy resins, their epoxy resin compositions with low viscosity, and their cured products with heat resistance

INVENTOR(S): **Akatsuka, Yasumasa; Nakanishi, Masataka;** Sunaga, Takao

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

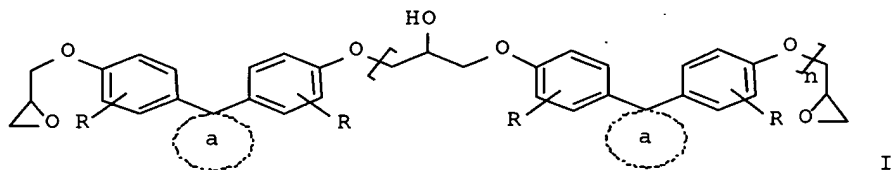
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007254581	A	20071004	JP 2006-80336	20060323
PRIORITY APPLN. INFO.:			JP 2006-80336	20060323

AB Title resins contain main components selected from RnC6H4-nQ2, RnC6H4-nQ12, and RnC6H4-nQ22 [R = H or C1-4 alkyl; Q = 2-glycidoxyethoxy; Q1 = OCH2CH(CH3)OX; Q2 = OCH(CH3)CH2OX with X = glycidyl; n = 1-3 integer]. A

composition containing an epoxy resin (from epichlorohydrin and resorcinol/ethylene oxide adduct) with viscosity 442 mPa-s, Kayahard MCD, and imidazole was molded and cured to form a test piece with glass-transition temperature of 168°.

L35 ANSWER 4 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2007:1110614 HCAPLUS Full-text  
 DOCUMENT NUMBER: 147:428356  
 TITLE: Epoxy resin compositions with good moisture resistance and toughness  
 INVENTOR(S): **Nakanishi, Masataka**; Oshimi, Katsuhiko; **Akatsuka, Yasumasa**; Sunaga, Takao  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 14pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007254579	A	20071004	JP 2006-80316	20060323
PRIORITY APPLN. INFO.: GI			JP 2006-80316	20060323



AB Title compns. comprise epoxy resins I, wherein R = H or phenyl; ring a = (un)substituted C3-17 cycloalkyl; and n = 0.5-20. Thus, 134 parts bisphenol Z and 370 parts epichlorohydrin were treated in the presence of NaOH to give an epoxy resin with epoxy equivalent 196 g/equiv, 98 parts of which was treated with 33.5 parts bisphenol Z to give an epoxy resin with epoxy equivalent 485/gequivalent and m.p. 106°, 48.6 parts of which was mixed with 10.5 parts a phenolic novolak resin and 0.7 parts Ph3P, and cured at 140° for 6 h and 170° for 2 h to give a test piece, showing moisture absorption 1.9% and fracture toughness 49 MPa.

L35 ANSWER 5 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2007:759254 HCAPLUS Full-text  
 DOCUMENT NUMBER: 147:177047  
 TITLE: Photosensitive compositions containing epoxy resins, and sheets, substrates, and articles formed from them  
 INVENTOR(S): **Nakanishi, Masataka**; Oshimi, Katsuhiko; **Tanaka,**

**Ryutaro;** Kurihashi, Toru  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 26pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007178937	A	20070712	JP 2005-380236	20051228
PRIORITY APPLN. INFO.:			JP 2005-380236	20051228

AB The compns. contain epoxy resins having frameworks bering bisphenol- or biphenol-derived OCH(OH)O bonds, and ethylenic unsatd. compds. Alternatively, the compns. contain alkali-soluble resins, crosslinking agents, photopolymn. initiators, and the epoxy resins. The compns. show high storage and heat stability and high tackiness and are useful for forming resists, solder resists, elec insulators for elec. circuits, photosensitive optical waveguides, etc.

L35 ANSWER 6 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2007:463636 HCAPLUS Full-text  
 DOCUMENT NUMBER: 146:443130  
 TITLE: Thermosetting resin compositions with good storage stability, flexibility, and bending, flame, and heat resistance  
 INVENTOR(S): **Tanaka, Ryutaro;** Uchida, Makoto; **Koyanagi, Hiroo**  
 PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan  
 SOURCE: PCT Int. Appl., 28pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007046405	A1	20070426	WO 2006-JP320724	20061018
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
PRIORITY APPLN. INFO.:			JP 2005-306517	A 20051021

AB Title thermosetting resin compns. comprise (A) a polyimide resin having a phenolic hydroxyl group, preferably produced from an aminophenol, a diamino compound, and a tetrabasic acid dianhydride and (B) an epoxy resin. Thus, 3,3',4,4'-diphenylsulfonetetracarboxylic dianhydride 1.02, 3,3'-amino-4,4'-dihydroxydiphenyl ether 0.60, and 4,4'-diaminodiphenyl ether 0.40 mol were

polymerized to give 30%-solids a phenolic hydroxy-containing polyimide solution with weight average mol. weight 78,000, 560 parts of which was mixed with 100 parts NC 3000H (epoxy resin) and 2 parts 2-phenyl-4,5-dihydroxymethylimidazole, applied on a polyethylene terephthalate film, heated at 180° for 1 h, and removed the film to give a test piece, showing good flexibility, flame resistance, and storage stability (composition).

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 7 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2007:329657 HCAPLUS Full-text  
 DOCUMENT NUMBER: 146:347458  
 TITLE: Photosensitive resin composition and cured object obtained therefrom  
 INVENTOR(S): **Tanaka, Ryutaro**; Kurihashi, Toru; **Akatsuka, Yasumasa**  
 PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan  
 SOURCE: PCT Int. Appl., 41pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007032326	A1	20070322	WO 2006-JP318017	20060912
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRIORITY APPLN. INFO.: JP 2005-267777 A 20050915

AB The resin composition comprises a photosensitive resin (A) soluble in an aqueous alkali solution, a reactive crosslinking agent (B), a photopolymn. initiator (C), and a hardener (D), wherein the hardener (D) is a 4,4'-bisphenol F epoxy resin. The resin composition has excellent photosensitivity, flexing characteristics, adhesion, pencil hardness, solvent resistance, acid resistance, heat resistance, resistance to gold plating, etc. The resin composition is useful for solder resists, dry film resists, interlayer insulating materials for multilayer wiring boards, etc.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 8 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2007:150716 HCAPLUS Full-text  
 DOCUMENT NUMBER: 146:218648  
 TITLE: Photosensitive resin composition and cured article thereof  
 INVENTOR(S): **Tanaka, Ryutaro**; Kurihashi, Toru; **Koyanagi, Hiroo**  
 PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan  
 SOURCE: PCT Int. Appl., 25pp.

CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2007015375	A1	20070208	WO 2006-JP314360	20060720
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZW, ZM, ZY RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
JP 2007041107	A	20070215	JP 2005-222629	20050801
PRIORITY APPLN. INFO.:			JP 2005-222629	A 20050801
AB An alkaline aqueous solution-soluble photosensitive resin composition contains (A) an alkaline aqueous solution-soluble resin obtained by adding a polybasic acid anhydride (e.g., tetrahydrophthalic anhydride) to a resin which is a reaction product of a biphenyl-based epoxy resin with an unsatd. monocarboxylic acid (e.g., acrylic acid), (B) an epoxy resin as a curing agent, and (C) a photopolymer. initiator. The resin composition is excellent in photosensitivity and excellent in flame resistance, flexibility, adhesiveness, pencil hardness, resistance to solvent, acid resistance, heat resistance, resistance to gold plating, etc. The resin composition is useful for solder resists.				
REFERENCE COUNT:	2	THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT		

L35 ANSWER 9 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2007:83854 HCAPLUS Full-text  
 DOCUMENT NUMBER: 146:163963  
 TITLE: Manufacture of storage-stable epoxy resins derived from tetrakis(4-hydroxyphenyl)ethane or substituted bis(4-hydroxyphenyl)fluorene by efficient crystallization  
 INVENTOR(S): **Nakanishi, Masataka**; Ueda, Yoshihiko; Kuboki, Kenichi; **Akatsuka, Yasumasa**; Oshimi, Katsuhiko  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan; Nippon Kayaku Fukuyama Co., Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 15pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007016115	A	20070125	JP 2005-198338	20050707
PRIORITY APPLN. INFO.:			JP 2005-198338	20050707



AB In the process, phenols [other than mixed phenols containing  $\geq 80$  area% (by HPLC) of 1,1,2,2-tetrakis(4-hydroxyphenyl)ethane (I)] are reacted with epihalohydrins to give solns. of glycidyl ethers (i.e., title epoxy resins), which are precipitated, by adding poor solvents forming azeotropes with the epihalohydrins, to give crystal dispersions, wherefrom the solvents are removed. Thus, I (TEP DF) was reacted with epichlorohydrin and precipitated by using MeOH and water as above to give an epoxy resin with epoxy equivalent 167 g/equivalent, m.p.  $169^\circ$ , and residual epichlorohydrin content  $\leq 100$  ppm.

IT **31425-02-2P**, TEP DF-epichlorohydrin copolymer

RL: IMF (Industrial manufacture); PREP (Preparation)

(manufacture of epoxy resins derived from tetrakis(4-hydroxyphenyl)ethane

or

substituted bis(4-hydroxyphenyl)fluorene)

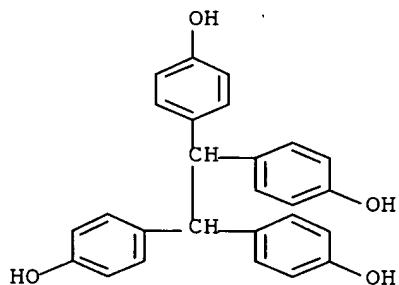
RN 31425-02-2 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis-, polymer with 2-(chloromethyl)oxirane (CA INDEX NAME)

CM 1

CRN 7727-33-5

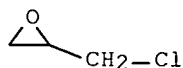
CMF C26 H22 O4



CM 2

CRN 106-89-8

CMF C3 H5 Cl O



L35 ANSWER 10 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:83852 HCAPLUS Full-text

DOCUMENT NUMBER: 146:163962

TITLE: Manufacture of crystalline epoxy resins with excellent heat resistance

INVENTOR(S): **Nakanishi, Masataka**; Kuboki, Kenichi; **Akatsuka, Yasumasa**; Oshimi, Katsuhiko

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan; Nippon Kayaku Fukuyama

SOURCE: Co., Ltd.  
 Jpn. Kokai Tokkyo Koho, 15pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007016114	A	20070125	JP 2005-198334	20050707

PRIORITY APPLN. INFO.: JP 2005-198334 20050707

AB Title epoxy resins are manufactured by (1) glycidyl etherification of phenol compds. other than ones containing  $\geq 80\%$  (area% by HPLC) 1,1,2,2-tetrakis(4-hydroxyphenyl)ethane (I) with epihalohydrins and optionally recovering part of epihalohydrins under heating and reduced pressure, (2) adding H<sub>2</sub>O-soluble solvents to the resulting reaction liquid, (3) adding H<sub>2</sub>O to the resulting mixts., and (4) filtering the resulting epoxy resin crystal dispersions. Thus, TEP-DF (glyoxal-phenol condensate; 98 area% I) 99.5, epichlorohydrin 740, and MeOH 148 parts were heated, refluxed with 40 parts NaOH, washed, distilled until resin concentration reached 60%, mixed with 100 parts DMSO and 200 parts MeOH, further mixed with 200 parts H<sub>2</sub>O, filtered, and dried to give 149 parts powdered epoxy resin crystals showing m.p. 172° and residual epichlorohydrin <100 ppm.

IT **31425-02-2P**, Epichlorohydrin-TEP-DF copolymer  
 RL: IMF (Industrial manufacture); PRP (Properties); PUR (Purification or recovery); PREP (Preparation)  
 (manufacture of crystalline epoxy resins with good heat resistance)

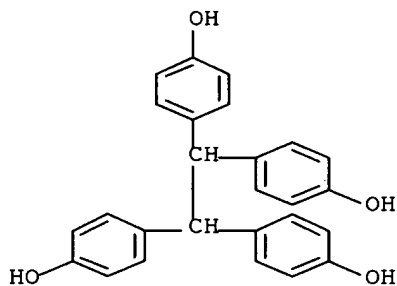
RN 31425-02-2 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis-, polymer with 2-(chloromethyl)oxirane (CA INDEX NAME)

CM 1

CRN 7727-33-5

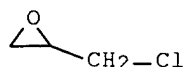
CMF C26 H22 O4



CM 2

CRN 106-89-8

CMF C3 H5 Cl O



L35 ANSWER 11 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:83850 HCAPLUS Full-text

DOCUMENT NUMBER: 146:164009

TITLE: Epoxy resins, their manufacture, photosensitive resins therefrom, photosensitive resin compositions, and display devices using them

INVENTOR(S): **Nakanishi, Masataka**; Kurihashi, Toru; **Tanaka, Ryutaro**

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 22pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2007016113	A	20070125	JP 2005-198258	20050707
PRIORITY APPLN. INFO.:			JP 2005-198258	20050707

AB Title epoxy resins are characterized by transmitted light Y value  $\geq 80$  in XYZ color system in wavelength region of 380-780 nm at cell thickness 10 cm (sic) for 50% THF solns. and are manufactured by (1) reaction of dicyclopentadiene- or tricyclopentadiene-phenol condensates with epihalohydrins in the presence of  $\geq 1$  mol/mol-OH of alkali metal hydroxides and/or Cl-6 alcs. or aprotic polar solvents and (2) ring-closure of residual halohydrin bodies in  $\geq 1$  solvents selected from Cl-10 ketones, esters, and aromatic hydrocarbons, where reduction catalysts are added in at least either process. Title photosensitive resins are reaction products of the epoxy resins and unsatd. carboxylic acids. Thus, 716 parts phenol was distilled at 150° under reduced pressure until 100 parts phenol was recovered, treated with 75 parts dicyclopentadiene at 90-150° in the presence of BF<sub>3</sub>.Et<sub>2</sub>O complex, freed of 300 parts excess phenol, blended with MIBK, washed, and freed of solvent and phenol to give 142 parts yellow phenolic resin (OH equivalent 179 g/equiv), 85 parts of which was mixed with epichlorohydrin 300, DMSO 150, and Na<sub>2</sub>S<sub>2</sub>O<sub>4</sub> 5 parts, heated to 35°, further mixed with 20 parts NaOH, heated to 70°, mixed with MIBK, washed, evaporated, dissolved in MIBK, further treated with 5 parts of aqueous 30% NaOH at 70°, washed, dehydrated, passed through a column containing cerite and SiO<sub>2</sub> g el, washed with MEK, and evaporated to give 103 parts epoxy resin showing epoxy equivalent 245 g/equiv, softening point 59°, Y value 89, and total Cl content 420 ppm.

L35 ANSWER 12 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:1176130 HCAPLUS Full-text

DOCUMENT NUMBER: 145:490028

TITLE: Flame- and impact-retardant epoxy resins and epoxy resin compositions

INVENTOR(S): **Nakanishi, Masataka**; **Tanaka, Ryutaro**

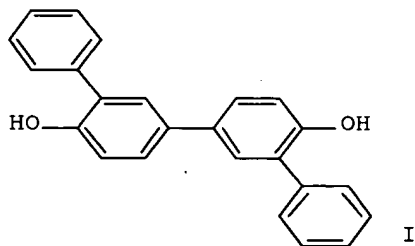
PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan

SOURCE: PCT Int. Appl., 28pp.

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006118240	A1	20061109	WO 2006-JP308959	20060428
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM JP 2006307011 A 20061109 JP 2005-131463 20050428 KR 2008000634 A 20080102 KR 2007-725298 20071031 PRIORITY APPLN. INFO.: JP 2005-131463 A 20050428 WO 2006-JP308959 W 20060428				

GI



AB Provides is an epoxy resin which is a crystalline epoxy resin, which gives a cured object excellent in various properties including flame retardancy, low water absorption, and impact resistance, and is useful as an optical material; an epoxy resin composition containing crystals of the epoxy resin and having excellent storage stability; and a cured object obtained from the composition. The crystalline epoxy resin is obtained by the glycidylation of the compound represented by the following formula (I).

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 13 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2006:1115950 HCAPLUS Full-text  
 DOCUMENT NUMBER: 145:429496  
 TITLE: Thermal printing material using specific color developer  
 INVENTOR(S): Tsugawa, Hiroaki; Akatsuka, Yasumasa; Nakanishi,

**Masataka**

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

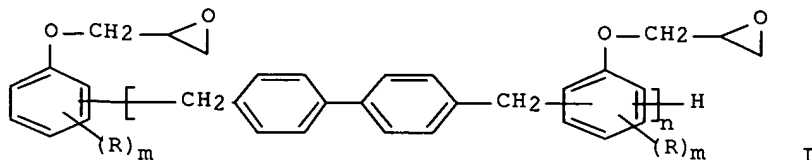
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006289741	A	20061026	JP 2005-112549	20050408
PRIORITY APPLN. INFO.:			JP 2005-112549	20050408

AB The material contains a colorless color-former and 4-allyloxy-4'-hydroxydiphenyl sulfone and 3,3'-diphenyl-4,4'-dihydroxybiphenyl as color developers. The material shows good heat and moisture resistance, storage stability, and gives images without background fog.

L35 ANSWER 14 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2006:978338 HCAPLUS Full-text  
 DOCUMENT NUMBER: 145:336750  
 TITLE: Epoxy resin, epoxy resin composition, and prepreg and laminates wherewith  
 INVENTOR(S): Oshimi, Katsuhiko; **Akatsuka, Yasumasa; Nakanishi, Masataka**; Sunaga, Takao  
 PATENT ASSIGNEE(S): Nippon Kayaku Kabushki Kaisha, Japan  
 SOURCE: PCT Int. Appl., 22pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006098329	A1	20060921	WO 2006-JP305041	20060314
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM EP 1860133 A1 20071128 EP 2006-729075 20060314 R: CH, DE, LI KR 2007121672 A 20071227 KR 2007-721085 20070914 PRIORITY APPLN. INFO.: JP 2005-73070 A 20050315 WO 2006-JP305041 W 20060314				

GI



AB Epoxy resin composition for preparation of prepregs and laminates comprises (A) epoxy resin (I) (where R = Cl-4 hydrocarbyl; m = 1-4; Rs can be different if m > 1; n = 1-6), (B) curing agents, and (C) curing catalysts. Thus, o-cresol and 4,4'-bis(chloromethyl)-1,1'-biphenyl were polymerized, and then reacted with epichlorohydrin to give a product; glass cloth was impregnated with the product to give prepreg, followed by laminating with Cu foils to give laminate with good heat or water resistance and low dielec. constant

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 15 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:912737 HCAPLUS Full-text

DOCUMENT NUMBER: 145:293779

TITLE: Modification of the molecular weight distribution of epoxy resins

INVENTOR(S): **Nakanishi, Masataka; Akatsuka, Yasumasa; Oshimi, Katsuhiko; Sunaga, Takao**

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 11pp.  
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006233078	A	20060907	JP 2005-51102	20050225
PRIORITY APPLN. INFO.:			JP 2005-51102	20050225

AB Epoxy resins are dissolved in good solvents and mixed with poor solvents to sep. poor-solvent-sols. (low-mol.-weight epoxy resins) and good-solvent-sols. (oligomers or polymers). Thus, EOCN 104S was dissolved in Me iso-Bu ketone and mixed with methanol to give 18% resin having mol. weight 1367 and 82% resin having mol. weight 10615.

L35 ANSWER 16 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:886359 HCAPLUS Full-text

DOCUMENT NUMBER: 145:272879

TITLE: Epoxy resins with good storage stability

INVENTOR(S): **Nakanishi, Masataka; Akatsuka, Yasumasa; Oshimi, Katsuhiko; Sunaga, Takao**

PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan

SOURCE: PCT Int. Appl., 39pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006090662	A1	20060831	WO 2006-JP302947	20060220
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
CA 2599153	A1	20060831	CA 2006-2599153	20060220
EP 1852451	A1	20071107	EP 2006-714088	20060220
R: CH, DE, FR, GB, LI				
KR 2007108384	A	20071109	KR 2007-719209	20070822
CN 101128501	A	20080220	CN 2006-80005859	20070823
PRIORITY APPLN. INFO.:				
			JP 2005-51150	A 20050225
			JP 2005-51959	A 20050225
			WO 2006-JP302947	W 20060220

AB Title epoxy resins comprise a phenol aralkyl type epoxy resin with bifunctional epoxy content  $\leq 20\%$  (area % measured by gel permeation chromatog.). Thus, 100 parts NC 3000H (phenol vinphenyl novolak epoxy resin) with softening point  $68^\circ$ , epoxy equivalent 288 g/equiv, and bifunctional epoxy content 23% was dissolved in 50 parts MEK at  $100^\circ$ , 200 parts methanol was added therein at  $60^\circ$ , refluxed for 1 h, decanted an upper portion, 25 parts MEK and 200 parts methanol were added into a residual portion, refluxed for 1 h, decanted an upper portion, repeated the separation process two times, and evaporated solvents to give an epoxy resin with softening point  $78^\circ$ , epoxy equivalent 294 g/equiv, bifunctional epoxy content 14%, Mw 2682, and good storage stability, 147 parts of which was mixed with 53 parts H 1 (phenol novolak) and 1.5 parts triphenylphosphine, showing glass transition temperature  $160^\circ$ , flexural strength 110 MPa, and toughness at break (JIS K 6911) 26 MPa.

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 17 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2006:817348 HCAPLUS Full-text  
 DOCUMENT NUMBER: 145:231268  
 TITLE: Heat-resistant phenol-glyoxal type multifunctional epoxy resin compositions and cured products  
 INVENTOR(S): Nakanishi, Masataka; Sunaga, Takao  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 11pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2006213823	A	20060817	JP 2005-27908	20050203
PRIORITY APPLN. INFO.:			JP 2005-27908	20050203

AB The compns., useful for semiconductor sealants, etc., comprise epoxy resins containing  $\geq 50\%$  (area% by HPLC) 1,1,2,2-tetrakis(4-glycidoxyphenyl)ethane (I) and acid anhydride-based curing agents. Thus, TEP-DF [99% 1,1,2,2-tetrakis(4-hydroxyphenyl)ethane] 300, epichlorohydrin 1110, and MeOH 240 parts were treated with 120 parts NaOH at 70°, washed, evaporated, refluxed with 1000 parts MeOH, filtered, and dried to give 431 parts crystalline epoxy resin (EP1) containing 72% I. Then, 166 parts EP1 and 94.5 parts methylnadic anhydride (Kayahard MCD) were dispersed, mixed with 2.5 parts imidazole (2E4MZ), cast-molded, and cured at 120-180° to give a cured product showing good heat resistance.

IT **905704-88-3P**, Epichlorohydrin-Kayahard MCD-TEP-DF copolymer  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (heat-resistant phenol-glyoxal type multifunctional epoxy resin compns.)

RN 905704-88-3 HCAPLUS

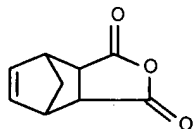
CN 4,7-Methanoisobenzofuran-1,3-dione, 3a,4,7,7a-tetrahydromethyl-, (3aR,4S,7R,7aS)-rel-, polymer with (chloromethyl)oxirane and 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 25134-21-8

CMF C10 H10 O3

CCI IDS

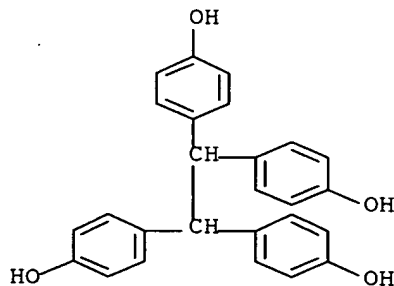


D1-Me

CM 2

CRN 7727-33-5

CMF C26 H22 O4

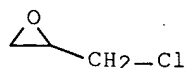




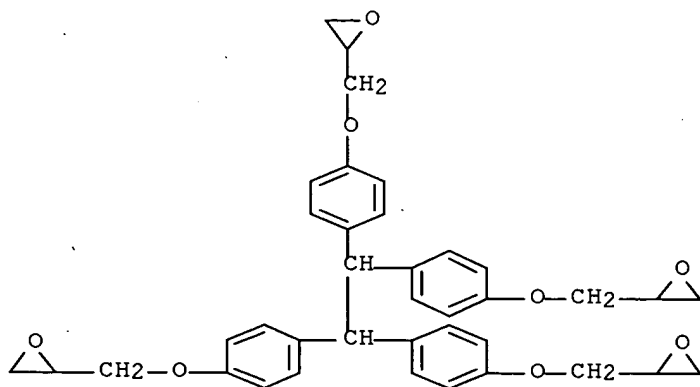
CM 3

CRN 106-89-8

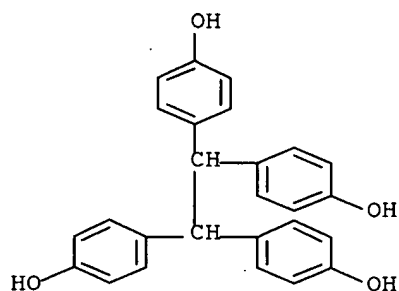
CMF C3 H5 Cl O



IT **7328-97-4P**, 1,1,2,2-Tetrakis(4-glycidioxyphenyl)ethane  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (heat-resistant phenol-glyoxal type multifunctional epoxy resin  
 compns.)  
 RN 7328-97-4 HCAPLUS  
 CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-  
 phenyleneoxymethylene)]tetrakis- (CA INDEX NAME)



IT **7727-33-5**, TEP-DF  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (heat-resistant phenol-glyoxal type multifunctional epoxy resin  
 compns.)  
 RN 7727-33-5 HCAPLUS  
 CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



L35 ANSWER 18 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2006:762247 HCAPLUS Full-text  
 DOCUMENT NUMBER: 145:198833  
 TITLE: Thermal printing sheets  
 INVENTOR(S): Tsugawa, Hiroaki; **Akatsuka, Yasumasa; Nakanishi, Masataka**  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006198775	A	20060803	JP 2005-10025	20050118

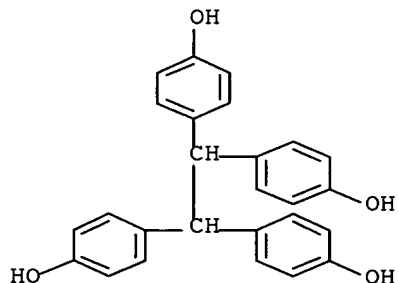
PRIORITY APPLN. INFO.: JP 2005-10025 20050118

AB The title sheet contains a leuco dye and color developing compds., wherein the color developing compds. are 4-allyloxy-4'-hydroxydiphenylsulfone and 1,1,2,2-Tetrakis(4-hydroxyphenyl)ethane. The sheet provides good color images and good storageability under heat and moisture.

IT **7727-33-5**, 1,1,2,2-Tetrakis(4-hydroxyphenyl)ethane  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (thermal printing sheets)

RN 7727-33-5 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



L35 ANSWER 19 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2006:634062 HCAPLUS Full-text

DOCUMENT NUMBER: 145:104476  
 TITLE: Epoxy resin, epoxy resin composition, and cured object obtained therefrom  
 INVENTOR(S): **Akatsuka, Yasumasa**; Oshimi, Katsuhiko; **Nakanishi, Masataka**; Moteki, Shigeru  
 PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan  
 SOURCE: PCT Int. Appl., 20 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006068185	A1	20060629	WO 2005-JP23505	20051221
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
CN 101084252	A	20071205	CN 2005-80044037	20051221
KR 2007098814	A	20071005	KR 2007-714137	20070621
PRIORITY APPLN. INFO.:			JP 2004-369304	A 20041221
			WO 2005-JP23505	W 20051221

AB Disclosed is an epoxy resin which is easy to produce and readily realizes a state in which the mols. are oriented. The epoxy resin gives a cured object which has optical anisotropy and is excellent in toughness and thermal conductivity. The epoxy resin can be obtained by subjecting an epoxidized product of 4,4'-bisphenol F to chain extension with 4,4'-biphenol.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

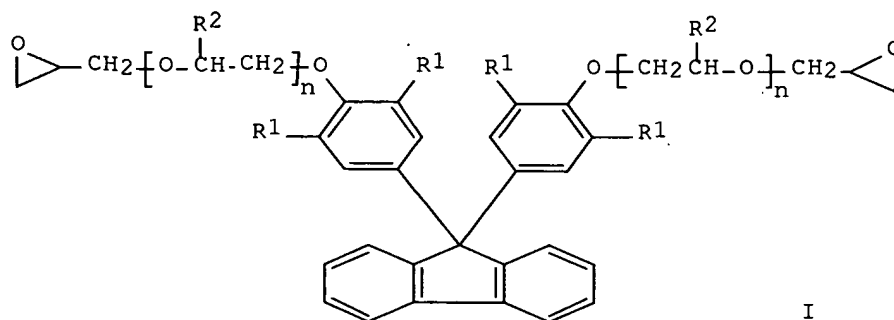
L35 ANSWER 20 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2006:211727 HCAPLUS Full-text  
 DOCUMENT NUMBER: 144:283228  
 TITLE: Photosensitive resin composition and cured product for manufacture of printed circuit board  
 INVENTOR(S): **Tanaka, Ryutaro**; **Nakanishi, Masataka**; **Akatsuka, Yasumasa**; Oshimi, Katsuhiko; Koyanagi, Takao  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006064890	A	20060309	JP 2004-246043	20040826

PRIORITY APPLN. INFO.:  
GI

JP 2004-246043

20040826



AB Title resin composition comprises (A) an aqueous alkali-soluble resin, (B) a reactive crosslinking agent, (C) a radical polymerization initiator, and (D) a curing agent of structure I ( $n = 0-3$ ;  $R_1 = H$ , halogen,  $C_1-4$  alkyl, phenyl;  $R_2 = H$ , methyl).

L35 ANSWER 21 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2006:144021 HCAPLUS Full-text

DOCUMENT NUMBER: 144:213583

TITLE: Manufacture of polyamide powders with good washing and drying performance and high solubility by spraying

INVENTOR(S): Uchida, Makoto; Akatsuka, Yasumasa; Motegi, Shigeru; Ishikawa, Kazunori; Uehara, Ryuji; Nakanishi, Masataka; Kametani, Hideteru

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2006045529	A	20060216	JP 2005-191115	20050630
PRIORITY APPLN. INFO.:			JP 2004-195223	A 20040701

AB Polyamide solns. are sprayed as mist onto the surfaces of poor solvents to give polyamide powders. Thus, isophthalic acid 20.335, 5-hydroxyisophthalic acid 22.294, and 3,4'-diaminodiphenyl ether 50.00 g were heated at 95° in N-methyl-2-pyrrolidone containing LiCl, pyridine, and Ph3PO3 to give a polyamide solution (solution viscosity at 25° 970 mPa-s, polyamide concentration 15%). The polyamide solution was sprayed onto the surface of H2O, stirred, and the resulting dispersion was filtered, washed, and hot-air dried at 75° for 24 h to give polyamide powder (average particle size 80  $\mu$ m) in 96% yield. A solution prepared by dissolving 0.100 g of the polyamide powder in 20.0 mL N,N-dimethylacetamide showed logarithmic viscosity (at 30°) 0.45 dL/g.

L35 ANSWER 22 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2006:74901 HCAPLUS Full-text  
 DOCUMENT NUMBER: 144:151180  
 TITLE: Liquid crystal epoxy resins, their compositions and their cured products having flexibility and optical anisotropy  
 INVENTOR(S): **Akatsuka, Yasumasa**; Oshimi, Katsuhiko; **Nakanishi, Masataka**  
 PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan  
 SOURCE: PCT Int. Appl., 23 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2006008984	A1	20060126	WO 2005-JP12649	20050708
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
CA 2578687	A1	20060126	CA 2005-2578687	20050708
EP 1770108	A1	20070404	EP 2005-765544	20050708
R: CH, DE, FR, GB, LI				
CN 1989165	A	20070627	CN 2005-80023789	20050708
KR 2007043716	A	20070425	KR 2006-726777	20061219
US 2008032154	A1	20080207	US 2007-630813	20070131
PRIORITY APPLN. INFO.:			JP 2004-211360	A 20040720
			JP 2004-277315	A 20040924
			WO 2005-JP12649	W 20050708

AB The epoxy resin GO-p-C<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>-p-C<sub>6</sub>H<sub>4</sub>[OCH<sub>2</sub>CH(OH)CH<sub>2</sub>Op-C<sub>6</sub>H<sub>4</sub>CH<sub>2</sub>-p-C<sub>6</sub>H<sub>4</sub>]nOG (G = glycidyl) is obtained by reacting 4,4'-bisphenol F with epichlorohydrin in the alkali metal hydroxide, then reacting 4,4'-bisphenol F and crystallizing In the epoxy resin, the area ratio of dinuclear component determined by GPC is not more than 25%.

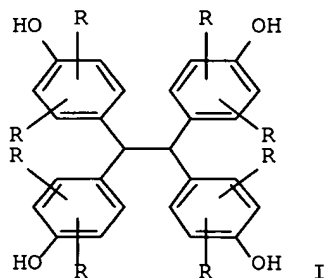
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 23 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2006:11102 HCAPLUS Full-text  
 DOCUMENT NUMBER: 144:109347  
 TITLE: Epoxy resins for epoxy resin compositions with good heat resistance, adhesion, and toughness  
 INVENTOR(S): **Nakanishi, Masataka**; **Akatsuka, Yasumasa**; Oshimi, Katsuhiko; **Tanaka, Ryutaro**  
 PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan  
 SOURCE: PCT Int. Appl., 46 pp.

CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006001395	A1	20060105	WO 2005-JP11670	20050624
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
CA 2570409	A1	20060105	CA 2005-2570409	20050624
EP 1760101	A1	20070307	EP 2005-753292	20050624
R: CH, DE, FR, GB, LI				
CN 1972978	A	20070530	CN 2005-80020580	20050624
US 2008021173	A1	20080124	US 2006-629313	20061212
KR 2007034534	A	20070328	KR 2006-727673	20061228
PRIORITY APPLN. INFO.:			JP 2004-188841	A 20040625
			JP 2004-188844	A 20040625
			WO 2005-JP11670	W 20050624

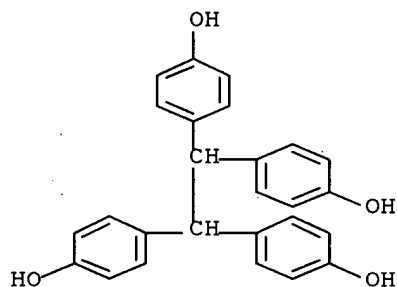
GI



AB Title epoxy resins are obtained by glycidylation of a mixture of (A) a phenol-glyoxal condensation product containing  $\geq 80\%$  (by gel permeation chromatog.) a compound I and (B) a phenol excluding A or a phenol resin, wherein R = independently H, C1-15 hydrocarbon, or trifluoromethyl group. Thus, TEP-DF (phenol-glyoxal condensate) 90, Kayahard GPH 65 (biphenyl type phenol aralkyl resin) 10, epichlorohydrin 429, and methanol 80 parts were mixed, 38 parts flake sodium hydroxide was added therein, and heated at  $70^\circ$  for 60 min to give an epoxy resin with epoxy equivalent 179 g/equiv, 100 parts of which was mixed with 59 parts phenol novolak and 1.0 part triphenylphosphine, transfer-molded, and cured at  $160^\circ$  for 2 h and  $180^\circ$  for 8 h to give a test piece, showing glass

transition temperature 190°, moisture absorption 1.2%, Izod impact strength 14 kJ/m, and K1c (JIS K 6911) 22 N/mm1.5.

IT **7727-33-5DP**, TEP-DF, reaction products with phenolic compds. and epichlorohydrin, polymers with phenolic resins  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (epoxy resins for epoxy resin compns. with good heat resistance, adhesion, and toughness)  
 RN 7727-33-5 HCAPLUS  
 CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 24 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:1262134 HCAPLUS Full-text

DOCUMENT NUMBER: 144:7531

TITLE: Heat-resistant crystalline epoxy resins with low melt viscosity, their manufacture, compositions, electronic packaging materials for semiconductors, and their cured materials

INVENTOR(S): **Nakanishi, Masataka**; Motegi, Shigeru; **Tanaka, Ryutaro**

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005330475	A	20051202	JP 2005-120604	20050419
PRIORITY APPLN. INFO.:			JP 2004-123978	A 20040420

AB The epoxy resins are prepared by reacting epihalohydrin with phenols of CH(p-OHC6H4-nRn)3 (R = H, C1-5 alkyl, halo, C1-5 alkoxy, Ph, aryl; n = 1-4). The manufacturing method includes dissolving epoxy resins in solvents containing ≥1 good solvents selected from C3-10 cyclic or linear ketones, esters, ethers, aprotic polar solvents, and C6-12 aromatic organic solvents, adding solvents containing ≥1 poor solvents selected from water, alcs., and aliphatic hydrocarbons, separating into two phases, stirring to give suspensions, and further adding linear ketones or linear esters. Thus, dissolving 200 parts epichlorohydrin-tris(p-hydroxyphenyl)methane copolymer (softening point 42.7°, epoxy equivalent 166 g/equiv) in a mixed solvent comprising water 100,

isopropanol 200, and MEK 300 parts, removing solvents at 90° and 0.1 kPa to give crystals, adding 150 parts MEK, dissolving, adding 150 parts methanol to give separated two phases, stirring to give a suspension, and adding MIBK gave a crystalline epoxy resin with m.p. 109°, epoxy equivalent 161 g/equiv, and viscosity at 150° 0.03 Pa-s. A composition containing the crystalline epoxy resin 50, phenol novolak 32.9, and triphenylphosphine 0.5 part was transfer-molded to give a test piece showing Tg 183°, linear expansion coefficient  $\alpha_1$  70 and  $\alpha_2$  161 ppm/°C, and adhesion strength to Cu 2.4 N/cm.

L35 ANSWER 25 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2005:1149684 HCAPLUS Full-text

DOCUMENT NUMBER: 143:423292

TITLE: Modified epoxy resins with good heat resistance and low viscosity, their compositions, their cured products, and semiconductor devices having them

INVENTOR(S): **Nakanishi, Masataka; Akatsuka, Yasumasa; Oshimi, Katsuhiko; Tanaka, Ryutaro**

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005298614	A	20051027	JP 2004-114854	20040409
PRIORITY APPLN. INFO.:			JP 2004-114854	20040409

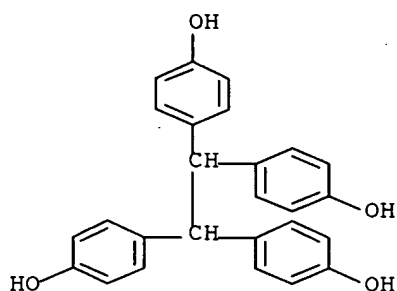
AB The invention relates to epoxy resins manufactured by glycidylation of mixts. consisting of 4,4'-dihydroxybiphenyl (I) and Q12CHCHQ1Q2(CHQ1CHQ1Q2)nH [II; Q1 = (un)substituted hydroxyphenyl, number of substituent = 0-2, substituent = halo, C1-10 hydrocarbyl, CF3, aryl; Q2 = (un)substituted hydroxyphenylene, number of substituent and substituent = same as above; n = 0-10 (obtained by UV-GPC at 245 nm)], useful for elec. insulators, elec. packaging materials, resists, adhesives, etc. Thus, a mixture comprising I and II (Q1 = hydroxyphenyl, Q2 = hydroxyphenylene, n = 0.04) containing 1-(2-hydroxyphenyl)-1,2,2-tris(4-hydroxyphenyl)ethane and 1,1,2,2-tetrakis(4-hydroxyphenyl)ethane was reacted with epichlorohydrin, kneaded with a phenol aralkyl resin (Milex XL 225-3L), silica, and other additives, and pelletized to give a composition showing spiral flow 72 in.

IT **7727-33-5DP**, 1,1,2,2-Tetrakis(4-hydroxyphenyl)ethane, glycidyl ethers, reaction products with epoxy resins and aralkyl resins  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (epoxy resins with good flowability and heat resistance for semiconductor device packaging)

RN 7727-33-5 HCAPLUS

CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)





L35 ANSWER 26 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2005:822492 HCAPLUS Full-text  
 DOCUMENT NUMBER: 143:194703  
 TITLE: Manufacture of heat-resistant crystalline epoxy resins  
 INVENTOR(S): **Nakanishi, Masataka; Akatsuka, Yasumasa**  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005220302	A	20050818	JP 2004-31791	20040209
PRIORITY APPLN. INFO.:			JP 2004-31791	20040209

AB Title resins are manufactured by reaction of condensed phenols containing  $\geq 80$  area% (measured by HPLC at 250-300 nm) 1,1,2,2-tetrakis(4-hydroxyphenyl)ethane (I) with epichlorohydrin, dissolving the products in cyclic ketones, and precipitating them with C4-6 linear or branched lower ketones or  $C \leq 6$  lower alcs. Thus, glyoxal-phenol condensate containing 98.9 area% I was refluxed with epichlorohydrin and NaOH in MeOH, filtered, the filtrate concentrated, dissolved in cyclopentanone, and treated with Me iso-Bu ketone to give 62.8% epoxy resin with TPC1 442.1 K and TPC2 451.2 K.

IT **31425-02-2P**, 1,1,2,2-Tetrakis(4-hydroxyphenyl)ethane-Epichlorohydrin polymer

RL: IMF (Industrial manufacture); PUR (Purification or recovery); PREP (Preparation)

(manufacture and crystallization of heat-resistant epoxy resins with ketone or alc.

solvents)

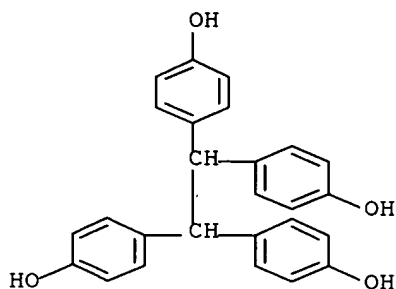
RN 31425-02-2 HCAPLUS

CN ? Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis-, polymer with 2-(chloromethyl)oxirane (CA INDEX NAME)

CM 1

CRN 7727-33-5

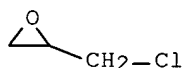
CMF C26 H22 O4



CM 2

CRN 106-89-8

CMF C3 H5 Cl O



L35 ANSWER 27 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2005:813712 HCAPLUS Full-text  
 DOCUMENT NUMBER: 143:194694  
 TITLE: Manufacture of crystalline heat-resistant epoxy resins  
 INVENTOR(S): **Nakanishi, Masataka; Akatsuka, Yasumasa**  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

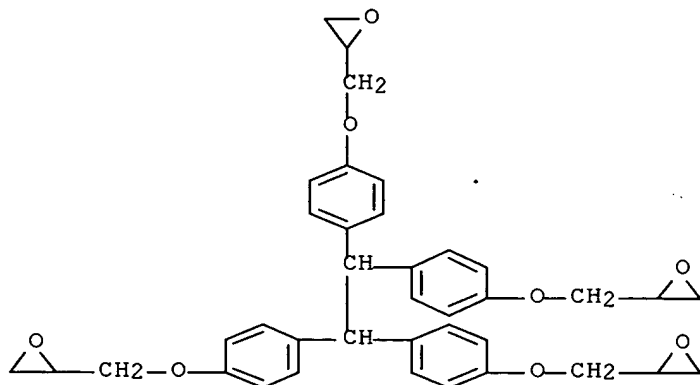
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005220300	A	20050818	JP 2004-31787	20040209

PRIORITY APPLN. INFO.: JP 2004-31787 20040209

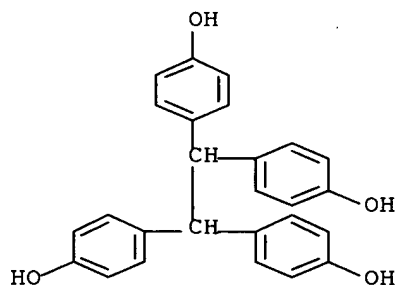
AB The invention relates to manufacturing method of  
 $\text{CHAr12CHAr1Ar2(CHAr1CHAr1Ar2)mH}$  ( $\text{Ar1} = \text{HORnC6H4-n}$ ;  $\text{Ar2} = \text{HORnC6H3-n}$ ;  $\text{R} = \text{H}$ ,  $\text{C} \leq 4$  hydrocarbon chain;  $m = 0-5$ ;  $n = 1-2$ ) containing glycidylation of  
 condensation phenols containing  $\geq 70\%$  [based on HPLC (high-performance liquid chromatog.) peak area at 250-300 nm] ( $\text{CHAr32}$ )<sub>2</sub> ( $\text{Ar3} = 4\text{-OH-RnC6H4-n}$ ;  $\text{R}$ ,  $n$  = same as above) with epihalohydrins to give glycidylation compds., removal of  
 residual epihalohydrins in the presence of good solvents with b.p.  $\geq 30^\circ$  higher  
 than the b.p. of the epihalohydrins for the glycidylation compds., addition of  
 poor solvents for the glycidylation compds., and crystallization Epoxy resins  
 by the method are useful for adhesives, elec. parts. etc. Thus, reacting  
 glyoxal-phenol copolymer compds. containing 1,1,2,2-tetrakis(4-  
 hydroxyphenyl)ethane with epichlorohydrin (I), removing residual I in DMSO,  
 and crystallizing in H<sub>2</sub>O and MeOH gave a colorless crystalline epoxy resin

containing 1,1,2,2-tetrakis(4-glycidoxyphenyl)ethane in 90% yield showing m.p. 455.1 K.

IT **7328-97-4P**, 1,1,2,2-Tetrakis(4-glycidoxyphenyl)ethane  
 RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
 (manufacture of crystalline heat-resistant epoxy resins)  
 RN 7328-97-4 HCAPLUS  
 CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis- (CA INDEX NAME)



IT **7727-33-5**, 1,1,2,2-Tetrakis(4-hydroxyphenyl)ethane  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (manufacture of crystalline heat-resistant epoxy resins)  
 RN 7727-33-5 HCAPLUS  
 CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis- (CA INDEX NAME)

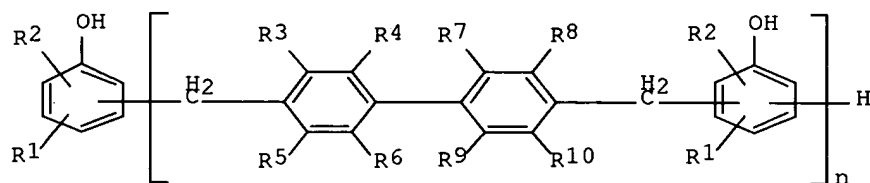


L35 ANSWER 28 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2005:697110 HCAPLUS Full-text  
 DOCUMENT NUMBER: 143:163099  
 TITLE: Photosensitive resin composition with excellent photosensitivity and cured product thereof  
 INVENTOR(S): **Koyanagi, Hiroo; Tanaka, Ryutaro**; Kametani, Hideaki  
 PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan  
 SOURCE: PCT Int. Appl., 29 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005071489	A1	20050804	WO 2005-JP761	20050121
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2552905	A1	20050804	CA 2005-2552905	20050121
EP 1710626	A1	20061011	EP 2005-703982	20050121
R: CH, DE, ES, GB, IT, LI				
CN 1910519	A	20070207	CN 2005-80003090	20050121
KR 2007001130	A	20070103	KR 2006-716273	20060811
PRIORITY APPLN. INFO.:			JP 2004-16751	A 20040126
			WO 2005-JP761	W 20050121
GI				



I

AB Disclosed is a photosensitive resin composition with excellent photosensitivity whose cured product is excellent in adhesiveness, pencil hardness, solvent resistance, acid resistance, heat resistance, gold plating resistance, HAST (highly accelerated temperature and humidity stress test) properties, flame retardance, flexibility and the like. Also disclosed is such a cured product. A photosensitive resin composition is characterized by comprising a reaction product (A) of a compound (a) represented by the formula I ( $n = 1-20$ ;  $R_1, R_2 = H, \text{halo}, \text{C1-4-alkyl}$ ;  $R_3, R_5, R_8, R_{10} = H, \text{halo}, \text{methyl}$ ;  $R_4, R_6, R_7, R_9 = H, \text{methyl}$ ), a compound (b) having an ethylenically unsatd. group and a glycidyl group in a mol. and a polybasic acid anhydride (c), a crosslinking agent (B) and a photopolymn. initiator (C). Also disclosed is a cured product of such a photosensitive resin composition

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 29 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:692330 HCAPLUS Full-text  
DOCUMENT NUMBER: 143:173940  
TITLE: Rubber-modified epoxy resins, compositions containing them, their transparent cured materials with high fracture toughness, photoconductors sealed with them, and manufacture of the resins  
INVENTOR(S): **Nakanishi, Masataka; Tanaka, Ryutaro;** Kawada, Yoshihiro  
PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005206690	A	20050804	JP 2004-14496	20040122
PRIORITY APPLN. INFO.:			JP 2004-14496	20040122

AB The resins are manufactured by reacting glycidyl ether with phenol polymers linked by C<sub>27</sub> alicyclic compds. to give epoxy resins with light transmittance at 400 nm (T400; 20% carbitol acetate solution) ≥30% and modifying with rubbers. Thus, reacting C<sub>6</sub>H<sub>4</sub>(OH)[XC<sub>6</sub>H<sub>4</sub>(OH)]<sub>n</sub> (X = tetrahydroadicyclopentadienylene) with epichlorohydrin in the presence of NaOH to give an epoxy resin showing softening point 59°, epoxy equivalent 247 g/equiv, and T400 82%. Feeding the epoxy resin 100, carboxy-containing rubber (Hycar CTBN) 10, and toluene 170 parts, adding PPh<sub>3</sub>, heating at 110°, removing toluene at pressure 95-105 kPa, and reacting gave a modified epoxy resin, which was mixed with curing agent (Rikacid TH) and transfer-molded to give a test piece showing Tg 140° and Izod impact strength 27 kJ/m<sup>2</sup>.

L35 ANSWER 30 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:671950 HCAPLUS Full-text  
DOCUMENT NUMBER: 143:154218  
TITLE: Manufacture of crystalline epoxy compounds with high yield  
INVENTOR(S): **Akatsuka, Yasumasa;** Oshimi, Katsuhiko; **Nakanishi, Masataka**  
PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005200527	A	20050728	JP 2004-7668	20040115
PRIORITY APPLN. INFO.:			JP 2004-7668	20040115

AB The manufacturing method comprises (A) dissolving CHQ<sub>2</sub>CHQ<sub>2</sub> (I; Q = monohydroxyphenyl) in epihalohydrins, (B) adding alkali metal hydroxides for preparing glycidyl ethers, (C) washing with H<sub>2</sub>O for removing alkali metal halides, and (D) removing the epihalohydrins by azeotropic distillation with H<sub>2</sub>O to obtain epoxy crystals precipitated in the water. Thus, reacting 99.5 parts I (Q = p-hydroxyphenyl; TEP-DF) and 370 parts epichlorohydrin in MeOH in

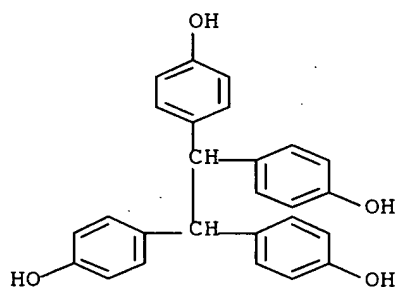
the presence of NaOH, removing MeOH, washing for removing NaCl, and azeotropically distilling with H<sub>2</sub>O gave white crystals of an epoxy compound with yield 144 parts, epoxy equivalent 166 g/equiv, and m.p. 180°.

IT **31425-02-2P**, Epichlorohydrin-TEP-DF copolymer  
 RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PYP (Physical process); PREP (Preparation); PROC (Process)  
 (manufacture of crystalline epoxy compds. with high yield)  
 RN 31425-02-2 HCAPLUS  
 CN Phenol, 4,4',4'',4'''-(1,2-ethanediylidene)tetrakis-, polymer with 2-(chloromethyl)oxirane (CA INDEX NAME)

CM 1

CRN 7727-33-5

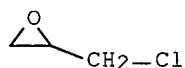
CMF C26 H22 O4



CM 2

CRN 106-89-8

CMF C3 H5 Cl O



L35 ANSWER 31 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:660696 HCAPLUS Full-text

DOCUMENT NUMBER: 143:134549

TITLE: Manufacture of phenol polymers, epoxy resins using them, compositions containing them, their moisture-resistant cured materials with good adhesion and high tenacity, and semiconductor devices having them

INVENTOR(S): **Nakanishi, Masataka; Akatsuka, Yasumasa**

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005200544	A	20050728	JP 2004-8187	20040115
PRIORITY APPLN. INFO.:			JP 2004-8187	20040115

AB The manufacturing method of C<sub>6</sub>H<sub>4</sub>-m(OH)R<sub>1</sub>m[QC<sub>6</sub>H<sub>3</sub>-m(OH)R<sub>1</sub>m]<sub>n</sub>H (R<sub>1</sub> = H, halo, C<sub>1</sub>-10 alkyl, aryl; Q = tricyclopentadiene residue; m = 1-3; n = 1-15) includes reacting C<sub>6</sub>H<sub>5</sub>-p(OH)R<sub>2</sub>p (R<sub>2</sub> = same as R<sub>1</sub>, p = 1-3) with tricyclopentadiene in the presence of Lewis acids at 100-130° for 1-3 h, then further reacting at 130-180° for 3-12 h. Thus, feeding phenol and trifluoroborane di-Et etherate, adding tricyclopentadiene dropwise, stirring at 120° for 1 h, further stirring at 130° for 1 h, then heating at 145° for 4 h to give a phenol polymer, adding epichlorohydrin, and reacting in the presence of NaOH gave an epoxy resin with viscosity at 150° 0.26 Pa-s, epoxy equivalent 323 g/equiv, softening point 80°, and Gardner color 1. A composition containing 64 parts of the epoxy resin and 32 parts terpene-based phenols (YP 90) was transfer-molded to give test pieces showing Tg 147°, water absorption 0.8% after immersing in water at 100° for 24 h, fracture toughness 27.1 MPa, and adhesion strength to Cu 2.6 kN/m (JIS K 6911).

L35 ANSWER 32 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:589066 HCAPLUS Full-text

DOCUMENT NUMBER: 143:98165

TITLE: Polyamide acid resins having unsaturated group for photosensitive resin compositions with good sensitivity

INVENTOR(S): Amishima, Chika; **Tanaka, Ryutaro**; Kametani, Hideaki; **Koyanagi, Hiroo**

PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan

SOURCE: PCT Int. Appl., 36 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005061586	A1	20050707	WO 2004-JP19009	20041220
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2550676	A1	20050707	CA 2004-2550676	20041220
EP 1698651	A1	20060906	EP 2004-807366	20041220
R: CH, DE, ES, GB, IT, LI				
CN 1898299	A	20070117	CN 2004-80038308	20041220
PRIORITY APPLN. INFO.:			JP 2003-424950	A 20031222

WO 2004-JP19009 W 20041220

AB Title polyamic acid resins are obtained by reacting a anhydride-end polyester resin containing an unsatd. group with a compound having two amino groups and the cured products of the photosensitive resin compns. are excellent in flexibility, adhesion, pencil hardness, and solvent, acid, heat resistance, and gold plating resistance. The photosensitive resin compns. contain (A) a polyamide acid resin containing an unsatd. group, (B) a crosslinking agent, and (C) a photopolymerization initiator. Thus, 372 g Epikote 828 and 144.1 g acrylic acid were reacted in the presence of a polymerization inhibitor at 100° for 22 h, 436.2 g pyromellitic anhydride was added therein and reacted at 100° for 10 h, reacted with 193.5 g 3,4'-diaminodiphenyl ether at 15° for 24 h to give a polyamide having an unsatd. group, 38.15 g of which was mixed with dipentaerythritol hexaacrylate 5.16, trimethylolpropane triacrylate 2.00, Irgacure 907 3.58, DETX-S (2,4-diethylthioxanthone) 0.36, YX 4000 (bixylenol type epoxy resin) 3.58, TEPIK (alicyclic epoxy resin) 7.16, melamine 1.07, silica 7.88, barium sulfate 17.53, pigment 0.47, Byk 354 (leveling agent) 0.72, KS 66 (antifoaming agent) 0.72, and propylene glycol monomethyl ether acetate 11.72 g, applied on a copper printed circuit board, dried at 80° for 60 min, irradiated through a photomask, developed, washed, and dried at 150° for 40 min to give a test piece with good tack property, gloss, surface gloss, adhesion, solvent, acid, gold plating, bending, and heat resistance, pencil hardness 5H, and no warping.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 33 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:522155 HCAPLUS Full-text

DOCUMENT NUMBER: 143:27366

TITLE: Heat-resistant flexible epoxy resins, epoxy resin compositions, and cured products thereof

INVENTOR(S): Akatsuka, Yasumasa; Motegi, Shigeru; Nakanishi, Masataka

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

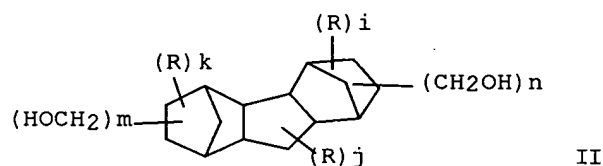
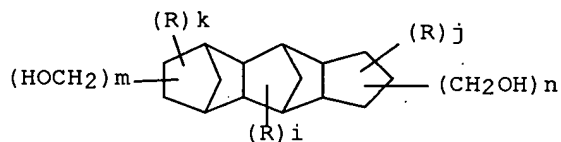
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005154484	A	20050616	JP 2003-391777	20031121
PRIORITY APPLN. INFO.:			JP 2003-391777	20031121

AB The epoxy resins are GOC6H3Me[CH2C6H2Me(OG)]nH (G = glycidyl; Me groups are positioned at m- or p-positions against glycidyl ether groups; ratio of Ph groups having m-Me and those having p-Me = 90:10 to 10:90; n = 6-30) and have softening point ≥100°. Varnishes, sheets, and prepregs containing the epoxy resin compns. containing curing agents are also claimed. Thus, 108 parts m-cresol and 108 parts p-cresol were treated with 60 parts of an aqueous 35% HCHO solution at 130° for 3 h in the presence of p-toluenesulfonic acid, mixed with MIBK, washed, and evaporated to give 140 parts cresol resin, 120 parts of which was treated with 370 parts epichlorohydrin at 70° for 1 h in MeOH in the presence of NaOH, washed, evaporated, dissolved in MIBK, heated, further treated with NaOH, washed, and evaporated to give an epoxy resin showing epoxy equivalent 216 g/equiv and softening point 114.2°.



L35 ANSWER 34 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2005:471189 HCAPLUS Full-text  
 DOCUMENT NUMBER: 143:8870  
 TITLE: Liquid pentacyclopentadecane epoxy resins, their compositions, cured products of the compositions, and semiconductor devices using the products  
 INVENTOR(S): **Nakanishi, Masataka; Akatsuka, Yasumasa;** Kametani, Hideteru  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2005139285	A	20050602	JP 2003-376715	20031106
PRIORITY APPLN. INFO.: GI			JP 2003-376715	20031106

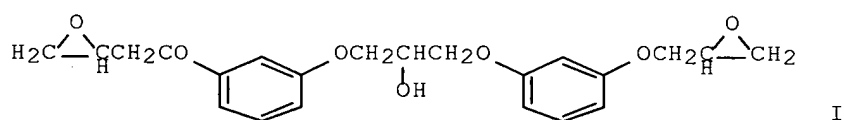


AB The epoxy resins are manufactured by treatment of poly(hydroxymethyl)pentacyclo pentadecanes I and/or II ( $R = H$ , C1-3 alkyl;  $m + n = 2, 3$ ;  $i, j, k = 1-3$ ) with epihalohydrins. Thus, a composition containing I ( $R = H$ ,  $m = n = 1$ )-II ( $R = H$ ,  $m = n = 1$ )-epichlorohydrin copolymer (light transmittance  $\geq 90\%$  at 220-1100 nm) 183, Kayahard MCD (methylnadic anhydride) 158, and 2-ethyl-4-methylimidazole 2 parts was cast to give a test piece showing water absorption 0.8%, fracture toughness 40.1 MPa (K1C), and good adhesion to Cu.

L35 ANSWER 35 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2005:368195 HCAPLUS Full-text  
 DOCUMENT NUMBER: 142:393263  
 TITLE: Liquid epoxy resins, their compositions, and cured articles with high heat resistance and good mechanical strength therefrom

INVENTOR(S): **Akatsuka, Yasumasa; Oshimi, Katsuhiko; Nakanishi, Masataka**  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005112896	A	20050428	JP 2003-345346	20031003
PRIORITY APPLN. INFO.: GI			JP 2003-345346	20031003



AB The compns., useful for elec. devices, adhesives, coatings, etc., comprise liquid epoxy resins I, curing agents, and optionally curing accelerators and inorg. fillers. Thus, resorcin and epichlorohydrin were reacted to give epoxy resin I (epoxy equivalent 130 g/equiv), which was mixed with methylnadic anhydride and 2-ethyl-4-methylimidazole and thermally cured to give a specimen, showing Tg 184° and flexural strength 160 MPa.

L35 ANSWER 36 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:362084 HCAPLUS Full-text

DOCUMENT NUMBER: 142:393254

TITLE: Crystallization-prevented liquid epoxy resins, their compositions, and cured articles with high heat resistance and good mechanical strength therefrom

INVENTOR(S): **Akatsuka, Yasumasa; Nakanishi, Masataka**

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

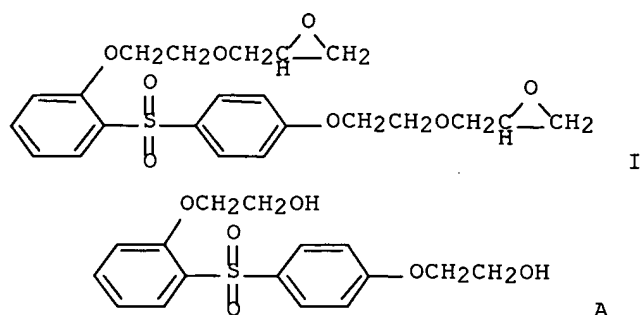
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005112897	A	20050428	JP 2003-345393	20031003
PRIORITY APPLN. INFO.: GI			JP 2003-345393	20031003



AB The compns., useful for elec. devices, adhesives, coatings, etc., comprise liquid epoxy resins I, curing agents, and optionally curing accelerators and inorg. fillers. Thus, 2,4'-bis(2-hydroxyethoxy)diphenyl sulfone was reacted with epichlorohydrin to give epoxy resin I (epoxy equivalent 228 g/equiv), which was mixed with methylnadic anhydride and 2-ethyl-4-methylimidazole and thermally cured to give a specimen, showing Tg 169° and flexural strength 135 MPa.

L35 ANSWER 37 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:57196 HCAPLUS Full-text

DOCUMENT NUMBER: 142:115150

TITLE: Modified epoxy resins, their manufacture, compositions based on them, and cured products thereof

INVENTOR(S): **Nakanishi, Masataka**; Motegi, Shigeru; **Tanaka, Ryutaro**

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005015582	A	20050120	JP 2003-180788	20030625
PRIORITY APPLN. INFO.:			JP 2003-180788	20030625

AB The modified epoxy resins with good heat resistance and balanced mech. properties are manufactured by dissolving epoxidized phenol aralkyl resins having biphenyl structure and rubbers having end groups reactive with epoxy groups in organic solvents and causing reaction while distilling off the organic solvents under heating and reduced pressure. Thus, 550 parts phenol aralkyl-type epoxy resin (NC 3000H) was blended with 55 parts Hycar CTBN and 330 parts PhMe, heated to 80°, mixed with 0.2 part PPh<sub>3</sub>, stirred at 110° and 95-105 kPa while distilling off the solvent, further stirred at 140° for 4 h after the PhMe recovery reached 275 parts, and freed of residual PhMe to give 605 parts rubber-modified epoxy resin, 160 parts of which was blended with 101 parts phenol aralkyl resin and 1.6 parts PPh<sub>3</sub>, transfer molded, and cured by heating to give a test piece showing Tg 140°, bending strength 109 MPa, flexural modulus 2.8 GPa, and Izod impact strength 40.2 kJm.

L35 ANSWER 38 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:878578 HCAPLUS Full-text  
DOCUMENT NUMBER: 141:372895  
TITLE: Liquid crystal sealing agent containing epoxy resin  
and liquid crystal display cell using the same  
INVENTOR(S): Imaizumi, Masahiro; Asano, Toyofumi; Ochi, Naoyuki;  
Hirano, Masahiro; Ichimura, Sumio; Kudo, Masaru;  
Oshimi, Katsuhiko; **Nakanishi, Masataka; Akatsuka,**  
**Yasumasa;** Nishihara, Eiichi; Itai, Masayuki  
PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan  
SOURCE: PCT Int. Appl., 42 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004090621	A1	20041021	WO 2004-JP4972	20040406
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2521615	A1	20041021	CA 2004-2521615	20040406
EP 1612597	A1	20060104	EP 2004-725989	20040406
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
CN 1771460	A	20060510	CN 2004-80009250	20040406
US 2006208219	A1	20060921	US 2005-552183	20051006
PRIORITY APPLN. INFO.:			JP 2003-103566	A 20030408
			JP 2003-103590	A 20030408
			WO 2004-JP4972	W 20040406

AB The liquid crystal sealing agent is characterized in that it comprises a bisphenol S-type epoxy resin represented by A[(OR)<sub>n</sub>OG]<sub>a</sub> (a = 2-4; n = 0-3; R = divalent hydrocarbon group having two to six carbon atoms; A = multivalent aromatic group; and G = glycidyl group), a heat curing agent, and a filler having an average particle diameter ≤3 μm. The liquid crystal sealing agent, with extremely low in the property of staining a liquid crystal and excellent in the workability in the application to a substrate and in a combining operation, exhibits a long working life and pot life, and has a high adhesion strength.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 39 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
ACCESSION NUMBER: 2004:757017 HCAPLUS Full-text  
DOCUMENT NUMBER: 141:278323  
TITLE: Photosensitive resin composition and curing product thereof  
INVENTOR(S): **Tanaka, Ryutaro; Koyanagi, Hiroo**  
PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan

SOURCE: PCT Int. Appl., 40 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004079452	A1	20040916	WO 2004-JP2718	20040304
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2518457	A1	20040916	CA 2004-2518457	20040304
EP 1600812	A1	20051130	EP 2004-717285	20040304
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK				
CN 1756993	A	20060405	CN 2004-80006007	20040304
US 2006102051	A1	20060518	US 2005-547907	20050906
PRIORITY APPLN. INFO.:			JP 2003-59309	A 20030306
			JP 2003-166038	A 20030611
			WO 2004-JP2718	W 20040304

AB Title photosensitive resin composition has good sensitivity to actinic energy rays, is hardenable within a short period of time, and can form pattern through development with a dilute aqueous alkali solution to give a cured film through thermal curing in the postcuring step. The composition comprises (1) an aqueous alkali-soluble urethane resin obtained by the reaction of a cyclic carboxylic acid anhydride with the reaction products of a diisocyanate compound, a diol compound having an ethylenically unsatd. group, a diol compound having a carboxyl group, and, optionally, a diol compound not having any ethylenically unsatd. group or carboxyl group, (2) a photopolymn. initiator; and (3) a reactive crosslinking agent. The composition has applications in manufacture of flexible printed circuit boards.

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 40 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2004:547748 HCAPLUS Full-text  
 DOCUMENT NUMBER: 141:96738  
 TITLE: Thermal printing material containing phenolic compound color developer  
 INVENTOR(S): Tsugawa, Hiroaki; Akatsuka, Yasumasa; Nakanishi, Masataka  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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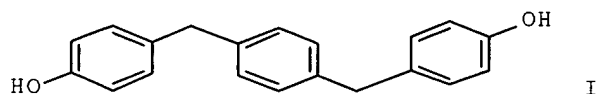
JP 2004188755  
 PRIORITY APPLN. INFO.:  
 GI

A

20040708

JP 2002-358984  
 JP 2002-358984

20021211  
 20021211



AB The material comprises a support coated with a heat sensitive layer containing a colorless color former and I as a color developer. The material shows high sensitivity and gives stable images without background fog.

L35 ANSWER 41 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2004:289642 HCAPLUS Full-text

DOCUMENT NUMBER: 140:304711

TITLE: Low-viscosity epoxy resins, their compositions, and their cured products with excellent heat and moisture stability

INVENTOR(S): **Nakanishi, Masataka; Akatsuka, Yasumasa; Suzuki, Fumiyoshi**

PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

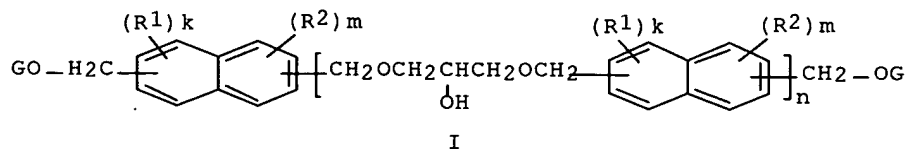
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004107497	A	20040408	JP 2002-272474	20020919
PRIORITY APPLN. INFO.:			JP 2002-272474	20020919

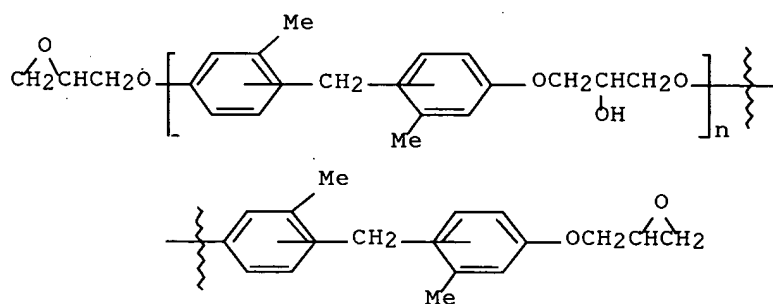
GI



AB The epoxy resins are I [G = glycidyl; R1, R2 = H, halo, C1-10 alkyl, allyl; k, m = 1-3; n = 0-8 (as average)]. The compns., useful for elec. insulators, adhesives, coatings, etc., comprise the resins and curing agents and optionally contain curing accelerators and inorg. fillers. Thus, a composition of 1,6-naphthalenedimethanol-epichlorohydrin copolymer ( $\eta$  201 mPa-s, epoxy equiv 106 g/equiv) 480, Kayahard MCD (methyl nadic anhydride) 474, and 2E4MZ 6 parts was cured in a mold to give a product showing Tg 171° and water absorption 0.9%.

L35 ANSWER 42 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2004:179980 HCAPLUS Full-text  
 DOCUMENT NUMBER: 140:218593  
 TITLE: Liquid epoxy resin, epoxy resin composition, and cured composition showing heat and water resistance  
 INVENTOR(S): Akatsuka, Yasumasa; Nakanishi, Masataka  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004067724	A	20040304	JP 2002-224801	20020801
JP 4036289	B2	20080123		
PRIORITY APPLN. INFO.: GI			JP 2002-224801	20020801



I

AB The liquid epoxy resin is that represented as I, which is mixed with a hardener to give the composition. The composition is cured to give the product with heat resistance comparable to conventional room temperature-solid triphenylmethane-type epoxy resin composition. Thus, 114 parts bis(1-hydroxy-3-methylphenyl)methane and 370 parts epichlorohydrin were polymerized in the presence of NaOH at 50-70° for 3 h to give the epoxy resin, 100 parts of which was mixed with 108 parts hardener (Kayahard MCD) and 1 part 2-ethyl-4-methylimidazole and cured at 80-180° for 8 h to give test pieces showing glass-transition temperature 175° and increase of weight 0.75% after 20 h in water at 100°.

L35 ANSWER 43 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 2004:117861 HCAPLUS Full-text  
 DOCUMENT NUMBER: 140:164744  
 TITLE: Storage-stable one-pot epoxy resin compositions and their cured articles

INVENTOR(S): **Akatsuka, Yasumasa;** Suzuki, Fumiyoshi  
 PATENT ASSIGNEE(S): Nippon Kayaku Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004043533	A	20040212	JP 2002-199557	20020709
JP 4023594	B2	20071219		

PRIORITY APPLN. INFO.: JP 2002-199557 20020709

AB The epoxy resin compns. contain (a) powdered epoxy resins having m.p.  $\geq 150^\circ$ , dispersed in (b) hardeners. Thus, 99.5 parts tetra(4-hydroxyphenyl)ethylene was reacted with 370 parts epichlorohydrin in MeOH containing NaOH to give 95 parts white crystal powders with 168 g/epoxy equiv and m.p.  $185^\circ$ , 100 parts of which was mixed with 95 parts Kayahard MCD (hardener) and 1 part 2-ethyl-4-methylimidazole to give a liquid composition having viscosity 350 and 370 mPa-s, initially and after 72 h at  $80^\circ$ , resp., and Tg of the cured ( $200^\circ$ ) article  $231^\circ$ .

IT **654639-22-2P**

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(storage-stable one-pot epoxy resin compns. and their cured articles)

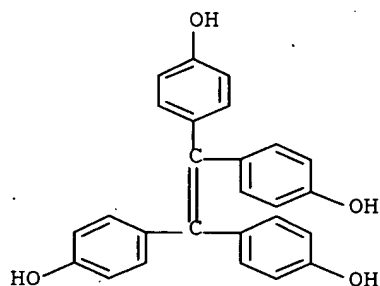
RN 654639-22-2 HCAPLUS

CN 4,7-Methanoisobenzofuran-1,3-dione, 3a,4,7,7a-tetrahydromethyl-, (3aR,4S,7R,7aS)-rel-, polymer with (chloromethyl)oxirane and 4,4',4'',4'''-(1,2-ethenediylidene)tetrakis[phenol] (9CI) (CA INDEX NAME)

CM 1

CRN 119301-59-6

CMF C26 H20 O4



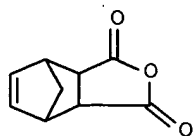
CM 2

CRN 25134-21-8

CMF C10 H10 O3

CCI IDS



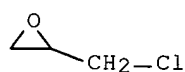


D1-Me

CM 3

CRN 106-89-8

CMF C3 H5 Cl O



IT 30621-65-9

RL: RCT (Reactant); RACT (Reactant or reagent)

(storage-stable one-pot epoxy resin compns. and their cured articles)

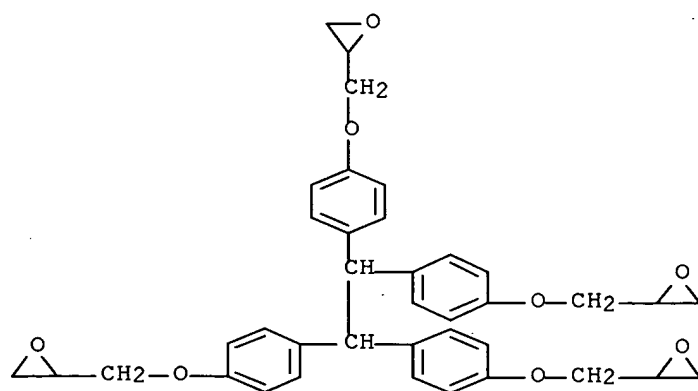
RN 30621-65-9 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis-, homopolymer (CA INDEX NAME)

CM 1

CRN 7328-97-4

CMF C38 H38 O8



L35 ANSWER 44 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2002:906349 HCAPLUS Full-text

DOCUMENT NUMBER: 138:5031

TITLE: Photosensitive polyurethane resins, photosensitive

INVENTOR(S): resin compositions therewith, and cured articles  
**Tanaka, Ryutaro; Koyanagi, Hiroo; Ozaki, Toru;**  
 Yokoshima, Minoru  
 PATENT ASSIGNEE(S): Nippon Kayaku Kabushiki Kaisha, Japan  
 SOURCE: PCT Int. Appl., 62 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002094904	A1	20021128	WO 2002-JP4700	20020515
W: CA, CN, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
JP 2002338652	A	20021127	JP 2001-147218	20010517
JP 2003147043	A	20030521	JP 2001-348344	20011114
JP 3846856	B2	20061115		
JP 2003155320	A	20030527	JP 2001-355269	20011120
JP 2003268067	A	20030925	JP 2002-68347	20020313
PRIORITY APPLN. INFO.:			JP 2001-147218	A 20010517
			JP 2001-348344	A 20011114
			JP 2001-355269	A 20011120
			JP 2002-68347	A 20020313

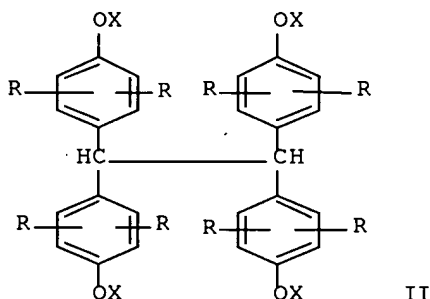
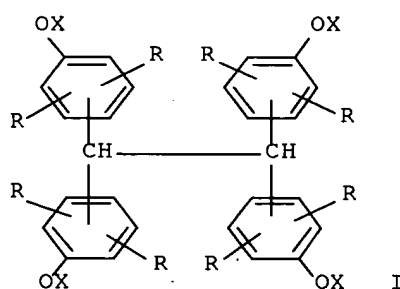
AB Title resins soluble in an aqueous alkali solution are obtained by reacting (A) an epoxy carboxylate compound obtained by reacting an epoxy compound having two epoxy groups with a monocarboxylic acid compound having an ethylenically unsatd. double bond with (B) a diisocyanate compound, (C) a carboxylic acid compound having two hydroxyl groups, and optionally (D) a diol compound excluding A and C and/or (E) an epoxy compound having an ethylenically unsatd. group. Title resin compns. with good photosensitivity can give cured articles with good flexibility, adhesion, pencil hardness, solvent resistance, acid resistance, heat resistance, and gold plating resistance. Thus, 340.0 g EP 807 was reacted with 144.1 g acrylic acid at 98°, 134.1 g 2,2-dimethylolpropionic acid and 111.15 g isophorone diisocyanate were added therein to give a 70%-solids alkaline solution soluble polyurethane acrylate solution with acid value 46.2 mg-KOH/g, 51.80 g of which was mixed with DPCA  $\epsilon$ -caprolactone-modified dipentaerythritol hexaacrylate 3.38, Irgacure 907 4.50, DETX-S 0.45, YX 4000 epoxy resin 17.62, melamine curing catalyst 1.0, barium sulfate 15.15, phthalocyanine blue 0.45, Byk 354 0.39, and KS 66 0.39 to give a photosensitive resin composition, which was applied on a printed board, irradiated with an UV using a mask, developed with 1% sodium carbonate, cured at 150° for 60 min to give a cured article.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L35 ANSWER 45 OF 45 HCAPLUS COPYRIGHT 2008 ACS on STN  
 ACCESSION NUMBER: 1997:191586 HCAPLUS Full-text  
 DOCUMENT NUMBER: 126:186899  
 TITLE: Low melt viscosity epoxy resin mixtures, epoxy resin compositions, and heat-resistant cured products  
 INVENTOR(S): **Akatsuka, Yasumasa; Kuboki, Kenichi; Shimamura, Yoshiro; Morita, Hiromi; Oono, Hiroaki**  
 PATENT ASSIGNEE(S): Nippon Kayaku Kk, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09003162	A	19970107	JP 1995-178016	19950622
JP 3573530	B2	20041006		
PRIORITY APPLN. INFO.:			JP 1995-178016	19950622
OTHER SOURCE(S):	MARPAT 126:186899			
GI				



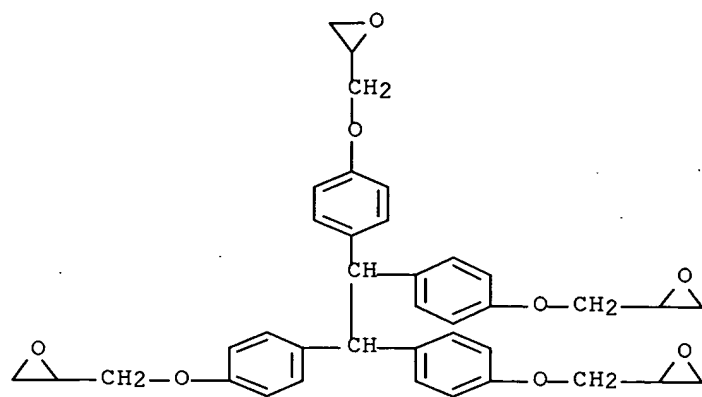
AB Title mixts. of I (R = H, C1-9 alkyl, aryl, halo; X = glycidyl or hydrogen) contain  $\geq 80\%$  II (R, X = same as above). Compns. containing the mixts., curing agents, and optionally curing accelerators for giving title cured compns., are useful for molding materials, laminates, coatings, adhesives, and resists, etc. Thus, 149 parts mixture of I (R = H, X = H) containing 98 mol% II (R = H, X = H) was treated with 555 parts epichlorohydrin in the presence of NaOH to obtain 219 parts a mixture of I (R = H; X = glycidyl) containing 98 mol% II (R = H; X = glycidyl), 100 parts of which was mixed with 64.6 parts phenol novolak, kneaded transfer-molded, and cured to obtain a test piece showing glass temperature 192°.

IT **7328-97-4**

RL: POF (Polymer in formulation); USES (Uses)  
 (low melt viscosity epoxy resin compns. for heat-resistant cured products)

RN 7328-97-4 HCAPLUS

CN Oxirane, 2,2',2'',2'''-[1,2-ethanediylidenetetrakis(4,1-phenyleneoxymethylene)]tetrakis- (CA INDEX NAME)



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